JUN 13 1961

MEDICAL LIBRARY
HISTORICAL BUILDING
DES MOINES, IOWA

volume 22
number 5
may 1961

Diseases *of the* Nervous System

A Practical Journal on Psychiatry and Neurology

Section One of Two Sections

(CONTENTS ON PAGE 236)

Published Monthly by

PHYSICIANS POSTGRADUATE PRESS
277 Broadway - New York 7, New York

Entered as second-class matter at
the Post Office at New York, N. Y.

LIFT THE DEPRESSION

Lift the depression with Marplan. Marplan has been shown to be considerably more potent than certain other amine oxidase regulators. While clinically such increase in potency has heretofore been associated with increased side effects, Marplan strikes a happy balance of potency/safety. Marplan has shown markedly fewer of the side reactions of the hydrazines (such as orthostatic hypotension, constipation, jitteriness, peripheral edema, skin rash). Moreover, throughout the extensive clinical investigations, no liver damage has been reported. Marplan is an amine oxidase regulator, however, and like all of these agents, it is contraindicated in the presence of liver or kidney disease.

Indications range from moderate to severe psychiatric disorders with associated symptoms of depression, withdrawal or regression. Marplan is also valuable as an adjunct in psychotherapy to facilitate the patient's responsiveness. *Complete literature* giving dosage, side effects and precautions is available upon request and should be consulted before prescribing.

Supplied: 10-mg tablets in bottles of 100 and 1000.

Bibliography: **1.** H. F. Darling, W. Kruse, C. F. Hess and M. G. Hoermann, *Dis. Nerv. System, 20*:269, 1959. **2.** G. C. Griffith, *Clin. Med., 6*:1555, 1959. **3.** R. B. Ford, H. E. Branham and J. J. Cleckley, *ibid.*, p. 1559. **4.** H. Azima, H. Durost, D. Arthurs and A. Silver, *Am. J. Psychiat., 116*:453, 1959. **5.** L. Alexander and S. R. Lipsett, *Dis. Nerv. System, 20*:(Suppl.), 26, 1959. **6.** H. F. Darling, *Am. J. Psychiat., 116*:355, 1959. **7.** A. L. Scherbel and J. W. Harrison, *Ann. New York Acad. Sc., 80*:(Art. 3), 820, 1959. **8.** L. O. Randall and R. E. Bagdon, *ibid.*, p. 626. **9.** G. Zbinden and A. Studer, *ibid.*, p. 873. **10.** O. Resnick, *ibid.*, p. 726. **11.** T. R. Robie, *Dis. Nerv. System, 20*:182, 1959. **12.** A. Feldstein, H. Hoagland and H. Freeman, *Science, 130*:500, 1959. **13.** L. O. Randall and R. E. Bagdon, *Dis. Nerv. System, 19*:539, 1958. **14.** W. Hollander and R. W. Wilkins, in J. H. Moyer, Ed., *Hypertension*, Philadelphia, W. B. Saunders Co., 1959, p. 399. **15.** I. Kimbell and A. Pokorny, paper read at Symposium on Newer Antidepressants and Other Psychotherapeutic Drugs, Galveston, Texas, Nov. 13-14, 1959. **16.** D. Goldman, *ibid.* **17.** J. E. Oltman and S. Friedman, *ibid.* **18.** G. Zbinden, *ibid.* **19.** G. C. Griffith and R. W. Oblath, *ibid.* **20.** H. Freeman, *ibid.* **21.** W. B. Abrams, A. Bernstein, V. D. Mattia, Jr., R. J. Floody and L. O. Randall, Scientific Exhibit, American Medical Association Meeting, Atlantic City, N. J., June 8-12, 1959. **22.** R. W. Oblath, paper read at American Therapeutic Society, 60th Annual Meeting, Atlantic City, N. J., June 6, 1959. **23.** S. L. Cole, *ibid.* **24.** I. Kimbell, Jr., paper read at Cooperative Chemotherapy Studies in Psychiatry, 4th Annual Research Conference, Memphis, Tenn., May 20-22, 1959. **25.** L. O. Randall and R. E. Bagdon, Second Marsilid Symposium, Chicago, May 8, 1958. **26.** W. B. Abrams, D. W. Lewis and M. C. Becker, paper read at the International Symposium on Catecholamines in Cardiovascular Pathology, Burlington, Vt., Aug. 23-26, 1959. **27.** H. I. Russek, *Angiology*, to be published.

MARPLAN®—brand of isocarboxazid

Marplan

ROCHE
LABORATORIES
Division of
Hoffmann-La Roche Inc.

In the treatment of 21 severely retarded patients,

Stelazine® "was superior
brand of trifluoperazine

to any of the drugs

previously used...."

Vasconcellos[1] administered 'Stelazine' to 21 mentally retarded patients, 15 of whom showed EEG evidence of brain damage. Their I.Q.'s ranged from 14 to 79, and their ages from 14 to 29 years. All had severe behavior problems, manifested in such ways as self-mutilation, destruction to property, soiling, overt masturbation and general unmanageability.

Over a period of seven months, 'Stelazine' therapy "resulted in marked improvement in [this] group of 21 patients . . . all of whom had received previous ataractic medication unsuccessfully." The author concluded that 'Stelazine' "was superior to any of the drugs previously used in the management of this group of patients."

1. Vasconcellos, J.: Clinical Evaluation of Trifluoperazine in Maximum-Security Brain Damaged Patients with Severe Behavioral Disorders, J. Clin. & Exper. Psychopath. *21*:25 (Jan.-Mar.) 1960.

PSYCHIATRIC PRESCRIBING INFORMATION

INDICATIONS: 'Stelazine' produces rapid response in many diagnostic categories, including acute and chronic schizophrenias, manic-depressive psychoses, involutional psychoses, chronic brain syndrome and mental deficiency.

ADMINISTRATION AND DOSAGE: Dosage of 'Stelazine' should be adjusted to the needs of the individual.

Because of the inherent long action of 'Stelazine', patients may be controlled on convenient b.i.d. administration; some patients, on once-a-day administration.

Adult Dosage for Use in Psychiatric Practice

oral (for office patients and outpatients with anxiety): The usual starting dosage is 1 mg. b.i.d. In some cases, a better response is achieved on 2 mg. b.i.d. In the treatment of these patients, it is seldom necessary to exceed 4 mg. a day. (Some patients with more severe disturbances, and discharged mental patients, may require higher dosages.) In some patients, maintenance dosage can be reduced to once-a-day administration.

oral (for patients who are either hospitalized or under adequate supervision): The usual starting dosage is 2 mg. to 5 mg. b.i.d. (Small or emaciated patients should always be started on the lower dosage.)

The majority of patients will show optimum response on 15 mg. or 20 mg. daily, although a few may require 40 mg. a day or more. It is important to give doses that are high enough for long enough periods of time—especially in chronic patients.

Optimum therapeutic dosage levels should be reached within two or three weeks after the start of therapy. When maximum therapeutic response is achieved, dosage may be reduced gradually to a satisfactory maintenance level.

intramuscular (for prompt control of severe symptoms): The usual dosage is 1 mg. to 2 mg. (½-1 cc.) by deep intramuscular injection q4-6h, p.r.n. More than 6 mg. within 24 hours is rarely necessary. As soon as a satisfactory response is observed, oral medication should be substituted at the same dosage level or slightly higher.

Only in very exceptional cases should intramuscular dosage exceed 10 mg. within 24 hours. Since 'Stelazine' has a relatively long duration of action, injections should not be given at intervals of less than 4 hours because of the possibility of an excessive cumulative effect.

'Stelazine' Injection has been exceptionally well tolerated; there is little, if any, pain and irritation at the site of injection.

Dosage for Psychotic and Mentally Defective Children

The dosages given below apply to children, ages 6 to 12, who are either hospitalized or under adequate supervision.

oral: The starting dosage is 1 mg. administered once a day or b.i.d., depending on the size of the child. Dosage may be increased gradually until symptoms are controlled or until side effects become troublesome. Both the rate and the amount of dosage increases should be carefully adjusted to the size of the child and the severity of the symptoms, and the lowest effective dosage should always be used. Once control is achieved, it is usually possible to reduce dosage to a satisfactory maintenance level.

In most cases, it is not necessary to exceed 15 mg. of 'Stelazine' daily. However, some older children with severe symptoms may require, and be able to tolerate, higher dosages.

intramuscular: There has been little experience with the use of 'Stelazine' Injection in children. However, if it is necessary to achieve rapid control of severe symptoms, 1 mg. (½ cc.) of 'Stelazine' may be administered intramuscularly once or twice a day, depending on the size of the child. Once control is achieved, usually after the first day, the oral dosage forms of 'Stelazine' should be substituted for the Injection.

SIDE EFFECTS: *In the dosage range of 2-4 mg. daily,* side effects from 'Stelazine' are infrequent. When they do occur, they are usually slight and transitory. Mild drowsiness occurs in a small percentage of patients; this usually disappears after a day or two of 'Stelazine' therapy. There are occasional cases of dizziness, mild skin reaction, dry mouth, insomnia and fatigue; rarely, neuromuscular reactions (extrapyramida symptoms).

In hospitalized psychiatric patients receiving daily 'Stelazine' dosages of 10 mg. or more, clinical experience has shown that, when side effects occur, their appearance is usually restricted to the first two or three weeks of therapy. After this initial period, they appear infrequently, even in the course of prolonged therapy. Termination of 'Stelazine' therapy because of side effects is rarely necessary.

Side effects observed include dizziness, muscular weakness, extrapyramidal symptoms, anorexia, rash, lactation and blurred vision. Drowsiness has occurred, but has been transient, usually disappearing in a day or two.

Extrapyramidal Symptoms

These symptoms are seen in a significant number of hospitalized mental patients receiving 'Stelazine'. They may be characterized by akathisia, be of the dystonic type, or they may resemble parkinsonism.

akathisia: Some patients may experience an initial transient period of stimulation or jitteriness, chiefly characterized by motor restlessness and sometimes insomnia. These patients should be reassured that this effect is temporary and will disappear spontaneously. The dosage of 'Stelazine' should not be increased while these side effects are present.

If this turbulent phase becomes too troublesome, the symptoms can be controlled by a reduction of dosage or the concomitant administration of phenobarbital or some other barbiturate.

dystonias: These symptoms are rare outside of mental hospitals, but they may be observed occasionally in patients who have received 'Stelazine' as a mild tranquilizer.

Symptoms may include: spasm of the neck muscles, sometimes progressing to torticollis; extensor rigidity of back muscles, sometimes progressing to opisthotonos; carpopedal spasm, trismus, swallowing difficulty, oculogyric crisis and protrusion of the tongue.

The onset of the dystonias may be sudden. A primary characteristic of these symptoms is their intermittency. They may last several minutes, disappear and then recur. There is typically no loss of consciousness and definite prodromata are usually present. Initially, these intermittent symptoms occur in a crescendo of intensity. Then as the effect of the drug wears off, the intervals between the occurrence of symptoms become longer, and the intensity of the symptoms subsides.

Despite their similarity to symptoms of serious neurological disorders, these dystonias are usually promptly reversible and need not cause undue alarm. They usually subside gradually within a few hours, and almost always within 24 to 48 hours, after the drug has been temporarily discontinued.

Treatment is symptomatic and conservative. *In mild cases,* reassurance of the patient is often sufficient therapy. Barbiturates are also useful. *In moderate cases,* barbiturates will usually bring rapid relief. The dosage and route of administration of the barbiturate used should be determined by the intensity of the symptoms and the response of the patient. *In more severe adult cases,* the administration of an anti-parkinsonism agent produces rapid, often dramatic, reversal of symptoms. Also, intravenous caffeine and sodium benzoate seems to be an effective and rapid antagonist to the dystonias. *In children,* reassurance and barbiturates will usually control symptoms. Dosage and route of administration should be determined according to the intensity of symptoms and response of patient.

Note: It has been reported that injectable administration of Benadryl* may also be helpful in controlling dystonias.

pseudo-parkinsonism: These symptoms are extremely rare outside of mental hospitals.

Symptoms include: mask-like facies; drooling; tremors; pillrolling motion; and shuffling gait.

Reassurance and sedation are important components of effective therapy. In the majority of cases these symptoms are readily reversible when an anti-parkinsonism agent is administered concomitantly with 'Stelazine'. Occasionally it is necessary to lower the dosage or to temporarily discontinue the drug.

CAUTIONS: Clinical experience has demonstrated that 'Stelazine', a phenothiazine derivative, has a wide range of safety and that there is little likelihood of either blood or liver toxicity. The physician should be aware, however, of their possible occurrence.

One of the results of 'Stelazine' therapy may be an increase in mental and physical activity. In some patients, this effect may not be desired. For example, although 'Stelazine' has relieved anxiety and, at the same time, anginal pain in patients with angina pectoris, a few such patients have complained of increased pain while taking 'Stelazine'. Therefore, if 'Stelazine' is used in angina patients, they should be observed carefully and, if an unfavorable response is noted, the drug should be withdrawn.

Hypotension has not been a problem, but nevertheless adequate precautions should be taken when the drug is used in patients with impaired cardiovascular systems.

The antiemetic action of 'Stelazine' may mask signs of overdosage of toxic drugs or may obscure the diagnosis of conditions such as intestinal obstruction and brain tumor.

Although 'Stelazine' has shown very little potentiating activity, caution should be observed when it is used in large doses in conjunction with sedatives or depressants.

CONTRAINDICATIONS: 'Stelazine' is contraindicated in comatose or greatly depressed states due to central nervous system depressants.

AVAILABLE: Tablets, 1 mg. and 2 mg., in bottles of 50, 500 and 5000. (Each tablet contains 1 mg. or 2 mg. of trifluoperazine as the dihydrochloride.) Also available, for psychiatric patients who are hospitalized or under close supervision: **Tablets,** 5 mg. and 10 mg., in bottles of 50, 1500 and 5000. (Each tablet contains 5 mg. or 10 mg. of trifluoperazine as the dihydrochloride.) **Injection,** 10 cc. Multiple-dose Vials (2 mg./cc.), in boxes of 1 and 25. (Each cc. contains, in aqueous solution, 2 mg. of trifluoperazine as the dihydrochloride, 4.75 mg. of sodium tartrate, 11.6 mg. of sodium biphosphate, 0.3 mg. of sodium saccharin, and 0.75% of benzyl alcohol.) **Concentrate** (for hospital use), 2 fl. oz. bottles (10 mg./cc.), in boxes of 4 and 12. (Each cc. contains 10 mg. of trifluoperazine as the dihydrochloride.)

*Trademark Reg. U.S. Pat. Off.: 'Benadryl' for diphenhydramine hydrochloride, Parke-Davis.

Smith Kline & French Laboratories

SK&F *leaders in psychopharmaceutical research*

Volume XXII MAY 1961 Number 5

DISEASES *of the* Nervous System

Contents

PERIPHERAL PERSONALITY FUNCTION IN THE USE OF PSYCHIATRIC DRUGS 249
Edwin O. Niver

SEX, ANGER AND ANXIETY: INTRAPERSONAL INTERACTION IN MARRIED COUPLES 256
G. Winokur and W. R. Gaston

THE FUNCTIONAL STRUCTURE OF THE PSYCHE 261
Z. O. Young

THE THERAPEUTIC COMMUNITY AND ITS BENEFITS 265
Alexander Gralnick

EFFECT OF DITRAN ON CHRONIC, REGRESSED MENTAL PATIENTS 268
William N. Karn, Jr., Beverley T. Mead and J. J. Fishman

PERCEPTION AND PSYCHO-PHARMACODYNAMICS IN SCHIZOPHRENIA 273
G. M. Davidson and Estelle Ades

THE SIGNIFICANCE OF COLOR IN DREAMS 278
Nathan Roth

USE OF CHLORPROMAZINE WITH THE DIFFICULT PEDIATRIC DENTAL PATIENT 282
Saul I. Harrison and Raymond H. Sawusch

EVALUATION OF ELECTROENCEPHALOGRAPHIC CHANGES ASSOCIATED WITH CHRONIC ALCOHOLISM 284
Mark Dyken, Phyllis Grant and Philip White

BOOK REVIEWS AND NOTES 287

EDITOR
Titus H. Harris, M.D. 112 North Boulevard, Galveston, Texas
MANAGING EDITOR
George Bisgeir, B.S., LL.B. New York, New York
ASSOCIATE EDITORS

A. F. Bennett, M.D.---Berkeley, California
Francis J. Braceland, M.D.---Hartford, Conn.
Franklin G. Ebaugh, M.D.---Denver, Colorado
Hamilton Ford, M.D.---Galveston, Texas
Walter Freeman, M.D.---Los Altos, California
A. Hauser, M.D.---Houston, Texas
David J. Impastato, M.D.---New York, N. Y.
Louis J. Karnosh, M.D.---Cleveland, Ohio
Frank H. Luton, M.D.---Nashville, Tennessee
Wm. Malamud, M.D.---Boston, Mass.
Karl A. Menninger, M.D.---Topeka, Kansas
Hans H. Reese, M.D.---Madison, Wisconsin
Lewis J. Siegal, M.D.---New York, New York
Harry C. Solomon, M.D.---Boston, Mass.
S. Bernard Wortis, M.D.---New York, N. Y.

YEARLY SUBSCRIPTION $10.00
Foreign Subscription $11.50

ONE FOR THE ROAD BACK: LIBRIUM

AN IMPORTANT AID IN THE TREATMENT AND REHABILITATION OF THE PROBLEM DRINKER

During and after an acute alcoholic episode, Librium relieves anxiety, agitation and hyperactivity, induces restful sleep, awakens the patient's desire for solid food and helps to control withdrawal symptoms. The complications of chronic alcoholism, including hallucinations and delirium tremens, can often be alleviated with Librium.

During the rehabilitation period, Librium makes the patient more accessible, strengthens the physician-patient relationship and facilitates better adjustment to family and job. Librium therapy helps to reduce the patient's need for alcohol by affording a constructive approach to his underlying personality disorders.

Consult literature and dosage information, available on request, before prescribing.

ROCHE LABORATORIES
Division of Hoffmann-La Roche Inc.

LIBRIUM® Hydrochloride—7-chloro-2-methylamino-5-phenyl-3H-1,4-benzodiazepine 4-oxide hydrochloride

"the most effective drug against tremor . . ."[1]

IN PARKINSONISM, Parsidol reduces tremor better than any other drug. Parsidol also increases finger dexterity, lessens rigidity and improves muscular coordination. Because he can do more things with greater accuracy, the patient's outlook brightens and his confidence returns.

Parsidol has also proved effective in controlling drug-induced, parkinson-like tremor. In a recent study, Parsidol reduced drug-induced tremor in 88% of the patients to whom it was given.[2]

Furthermore, Parsidol is "...very well tolerated by the geriatric patient..."[1,3,4]—the patient in whom tremor is most often seen. Parsidol, usually effective by itself, is also compatible with most other antiparkinsonian drugs.[1,3,4] Most patients respond to a maintenance dose of 50 mg. q.i.d.

PARSIDOL®

brand of ethopropazine hydrochloride

for the control of tremor in

PARKINSONISM

WARNER CHILCOTT
MORRIS PLAINS, N.J.

1. Schwab, R. S. and England, A. C.: *J. Chron. Dis.* 8:488 (Oct.) 1958.
2. Kruse, Walter K.: *Dis. Nerv. System* 21:80 (Feb.) 1960.
3. Schwab, R. S.: *Geriatrics* 14:545 (Sept.) 1959.
4. Doshay, L. J., *et al.*: *J.A.M.A.* 160:348 (Feb. 4) 1956.

GP11

Why Deprol is the first drug to use in depressions

Clinical reports indicate that many depressions can be relieved by Deprol and psychotherapy, without recourse to more hazardous drugs or EST.

Deprol relieves the patient's related anxiety, insomnia and anorexia without danger of overstimulation, thus permitting better rapport to be established sooner, and facilitating more effective treatment.

Deprol acts without undue delay. Its effect can be determined quickly. If unusual cases require additional or alternative therapy, this will be quickly discernible.

Deprol can be controlled – there is no lag period of a week or two over which drug effects continue after medication is stopped. In cases where alternative therapy may be needed, it can be started at once.

Deprol is safe – does not produce liver damage, hypotension, psychotic reactions or changes in sexual function; does not interfere with other drug therapies.

Deprol®

benactyzine + meprobamate

Composition: Each tablet contains 1 mg. 2-diethylaminoethyl benzilate hydrochloride (benactyzine HCl) and 400 mg. meprobamate.

Supplied: Bottles of 50 light-pink, scored tablets.

Dosage: Usual starting dose is 1 tablet q.i.d. When necessary, this dose may be gradually increased up to 3 tablets q.i.d.

WALLACE LABORATORIES
Cranbury, N. J.

Bibliography *(11 clinical studies, 764 patients):*
1. Alexander, L. (35 patients): Chemotherapy of depression—Use of meprobamate combined with benactyzine (2-diethylaminoethyl benzilate) hydrochloride. J.A.M.A. 166:1019, March 1, 1958. **2.** Bateman, J. C. and Carlton, H. N. (50 patients): Meprobamate and benactyzine hydrochloride (Deprol) as adjunctive therapy for patients with advanced cancer. Antibiotic Med. & Clin. Therapy 6:648, Nov. 1959. **3.** Bell, J. L., Tauber, H., Santy, A. and Pulito, F. (77 patients): Treatment of depressive states in office practice. Dis. Nerv. System 20:263, June 1959. **4.** Breitner, C. (31 patients): On mental depressions. Dis. Nerv. System 20:142, (Section Two), May 1959. **5.** Landman, M. E. (50 patients): Choosing the right drug for the patient. Submitted for publication, 1960. **6.** McClure, C. W., Papas, P. N., Speare, G. S., Palmer, E., Slattery, J. J., Konefal, S. H., Henken, B. S., Wood, C. A. and Ceresia, G. B. (128 patients): Treatment of depression—New technics and therapy. Am. Pract. & Digest Treat. 10:1525, Sept. 1959. **7.** Pennington, V. M. (135 patients): Meprobamate-benactyzine (Deprol) in the treatment of chronic brain syndrome, schizophrenia and senility. J. Am. Geriatrics Soc. 7:656, Aug. 1959. **8.** Rickels, K. and Ewing, J. H. (35 patients): Deprol in depressive conditions. Dis. Nerv. System 20:364, (Section One), Aug. 1959. **9.** Ruchwarger, A. (87 patients): Use of Deprol (meprobamate combined with benactyzine hydrochloride) in the office treatment of depression. M. Ann. District of Columbia 28:438, Aug. 1959. **10.** Settel, E. (52 patients): Treatment of depression in the elderly with a meprobamate-benactyzine hydrochloride combination (Deprol). Antibiotic Med. & Clin. Therapy 7:28, Jan. 1960. **11.** Splitter, S. R. (84 patients): The care of the anxious and the depressed. Submitted for publication, 1959.

CD-960

AN OFFICIALLY APPROVED INSTRUMENT
WHICH HAS ALSO WON POPULAR APPROVAL.

the REITER MOL-AC II

for

UNEQUALLED EASE OF OPERATION

in

A.C. SHOCK THERAPY

SAFE

The MOL-AC II, provides the highest degree of complete electrical isolation, by far exceeding official code requirements, to assure the maximum in safe operation.

EFFECTIVE

Clinical results have been uniformly excellent. Side effects are automatically reduced. The MOL-AC II is acclaimed internationally by leading physicians and institutions.

AUTOMATIC

The MOL-AC II provides a highest initial current to initiate seizure pattern with an automatic reduction to safe low voltage in every case. Instantly and automatically re-set for repeated treatments. With the MOL-AC II, doctors report they are now certain of full seizure each treatment even with large doses of muscle relaxants.

EASY TO USE

Controls are simplified — one 3-position current intensity dial and one treatment switch. Just plug in ordinary AC current and the MOL-AC II is ready for immediate use. The MOL-AC II has a handsome walnut case. Attractively priced at $100.00 complete with finest physician's bag of genuine leather and attachments.

DURABLE

Ingenious design with only one moving part. Remarkable freedom from service requirement.

Also available—Reiter Model SOS, the advanced, most efficient instrument combining the strongest convulsive UNIDIRECTIONAL currents with powerful yet gentle sedative currents. (Many additional features included.) Literature on request.

REUBEN REITER, Sc.D. 64 WEST 48th ST., NEW YORK 36, N. Y.

ANNOUNCING... A POTENT ANTIDEPRESSANT WITH EFFECTIVE ANTI-ANXIETY PROPERTIES...

NEW

ELAVIL

AMITRIPTYLINE HYDROCHLORIDE

MSD

new...a potent antidepressant with effective anti-anxiety properties

ELAVIL

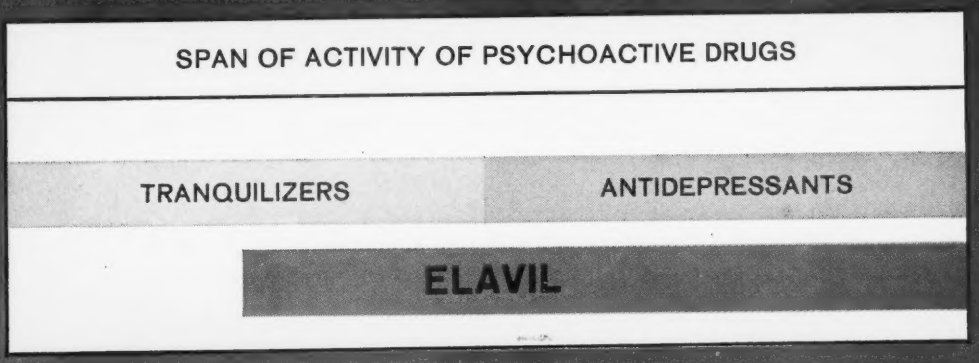
AMITRIPTYLINE HYDROCHLORIDE

RELATIVE UTILITY IN MANAGEMENT OF DEPRESSED PATIENTS

Class of compounds	TARGET SYMPTOMS OF DEPRESSION: *Anxiety*	*Insomnia*	*Depression*	*Over-all relief of symptoms*
TRANQUILIZERS	"Failure of the tranquilizers to produce satisfactory results is due in many cases to their being prescribed for depression, especially depression masked by the more prominent symptoms of anxiety. The underlying depression may be deepened."[1]			+ −
ANTIDEPRESSANTS			"CNS stimulants and anti-depressants, if given to anxious patients, will increase the anxiety...."	+
ELAVIL	"... this drug [ELAVIL] acted both as a tranquilizer and as an anti-depressant..."[2] Many physicians customarily treat anxious or depressed patients with a combination of an antidepressant and a tranquilizer. This is seldom necessary when prescribing ELAVIL because it has both antidepressant and anti-anxiety properties.			+ +

AVIL

effective in patients with depression...
particularly useful in those with predominant symptoms of anxiety and tension...provides prompt relief of anxiety and insomnia associated with depression



INDICATIONS: manic-depressive reaction—depressed phase; involutional melancholia; reactive depression; schizoaffective depressions; neurotic depressive reaction; and these target symptoms: anxiety; depressed mood; insomnia; psychomotor retardation; functional somatic complaints; loss of interest; feelings of guilt; anorexia. May be used whether the emotional difficulty is a manifestation of neurosis or psychosis, and in ambulatory or hospitalized patients.[1, 4, 5]

USUAL ADULT ORAL DOSAGE: Initial, 25 mg. three times a day, until a satisfactory response is noted. Many patients improve rapidly, although some depressed patients may require four to six weeks of therapy before obtaining maximum benefit. In severely depressed patients, as much as 150 mg. per day may be given. **Maintenance,** 25 mg. two to four times a day. Some patients may be maintained on 10 mg. four times a day. The natural course of depression is often many months in duration. Accordingly, it is appropriate to continue maintenance therapy for at least three months after the patient has achieved satisfactory improvement in order to lessen the possibility of relapse, which may occur if the patient's depressive cycle is not complete. In the event of relapse, therapy with ELAVIL may be reinstituted.

ELAVIL is not a monoamine oxidase (MAO) inhibitor. No evidence of drug-induced jaundice or agranulocytosis has been noted. Side effects (drowsiness, dizziness, nausea, excitement, hypotension, fine tremor, jitteriness, headache, heartburn, anorexia, increased perspiration, and skin rash), when they occur, are usually mild. However, as with all new therapeutic agents, careful observation of patients is recommended. As with other drugs possessing significant anticholinergic activity, ELAVIL is contraindicated in patients with glaucoma.

SUPPLY: Tablets, 10 mg. and 25 mg., in bottles of 100. **Injection** (intramuscular), 10 mg. per cc., 10-cc. vials.

REFERENCES: 1. Perloff, M. M., and Levick, L. J.: Clinical Med. 7:2237, Nov. 1960. 2. Freed, H.: Am. J. Psychiat. 117:455, Nov. 1960. 3. Dorfman, W.: Psychosomatics 1:153, May-June 1960. 4. Ayd, F. J., Jr.: Psychosomatics 1:320, Nov.-Dec. 1960. 5. Barse, J. A., and Saunders, J. C.: Am. J. Psychiat. 117:739, Feb. 1961.

Before prescribing or administering ELAVIL, the physician should consult the detailed information on use accompanying this package or available on request.

MERCK SHARP & DOHME, DIVISION OF MERCK & CO., INC., WEST POINT, PA.

ELAVIL IS A TRADEMARK OF MERCK & CO., INC.

105210

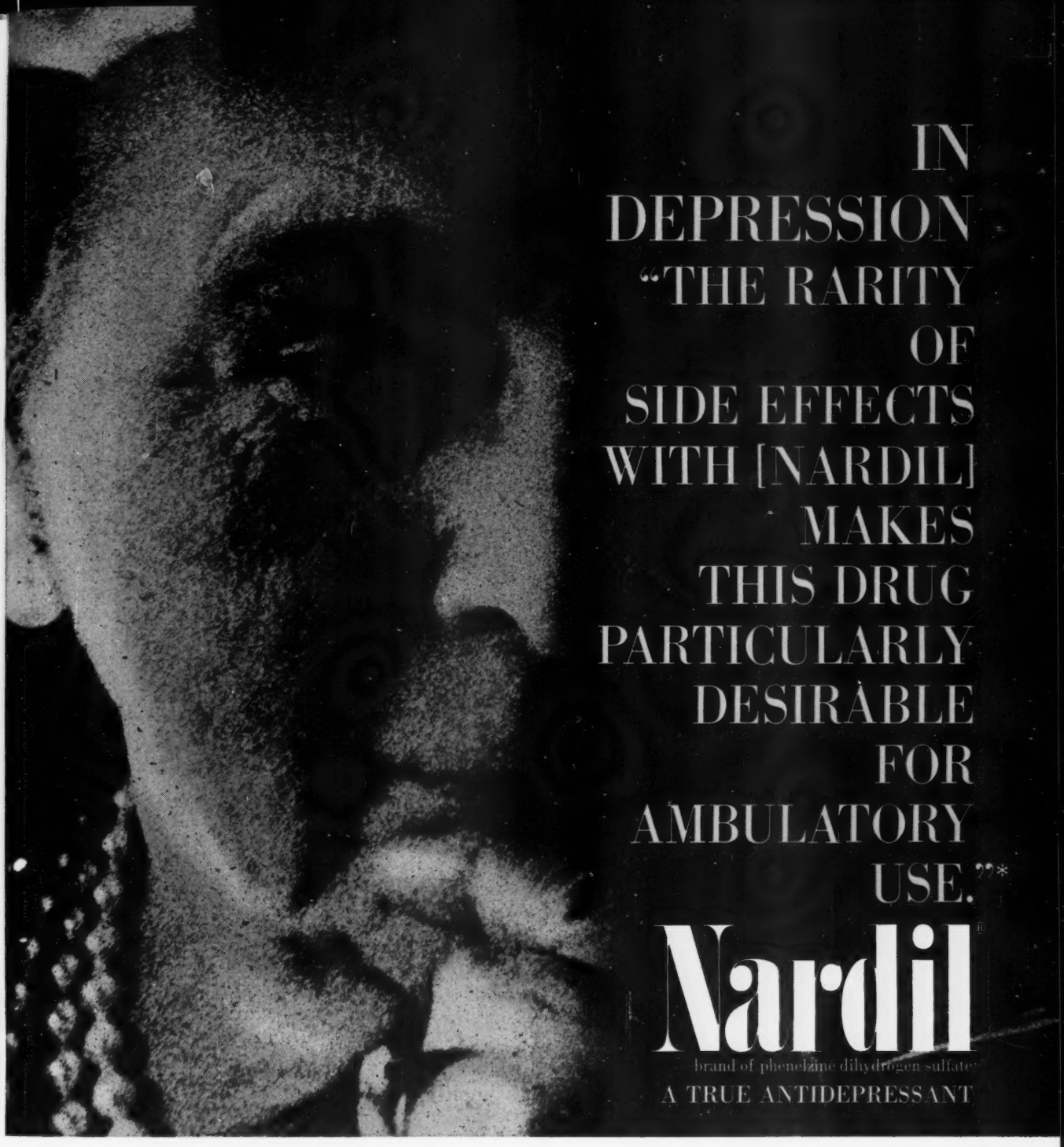
How does an epileptic propose?

Nervously. Even as you and I. Hopefully, quietly, with soft music and lights. Even as you and I.

The important thing is that he can propose, thanks to the drugs of modern medical science. Properly controlled with effective agents, such as these five distinguished anticonvulsants, the epileptic today can look forward to a normal married life. Won't you remember these names the next time you prescribe.

ANTICONVULSANTS FROM ABBOTT—PEGANONE® (Ethotin, Abbott) provides exceptionally low toxicity in the treatment of grand mal and psychomotor seizures. **TRIDIONE®** (Trimethadione, Abbott) and **PARADIONE®** (Paramethadione, Abbott) are homologous agents. They generally afford symptomatic control of petit mal, myoclonic and akinetic seizures. **PHENURONE®** (Phenacemide, Abbott) often proves useful where other agents have failed. Indicated for grand mal, petit mal, psychomotor and mixed seizures. **GEMONIL®** (Metharbital, Abbott) is relatively non-toxic and is indicated for the treatment of grand mal, petit mal, myoclonic and mixed seizures which are symptomatic of brain damage.

ABBOTT



IN DEPRESSION "THE RARITY OF SIDE EFFECTS WITH [NARDIL] MAKES THIS DRUG PARTICULARLY DESIRABLE FOR AMBULATORY USE."*

Nardil®

brand of phenelzine dihydrogen sulfate

A TRUE ANTIDEPRESSANT

"Based on the results of a clinical trial with 150 ambulatory private patients, [Nardil]... has been highly effective in relieving severe depressive states."*

Nardil is rapidly effective—antidepressant response may be seen in a week, although complete remissions usually take from two to six weeks of continuous therapy.

"[Nardil] has distinct advantages...primarily because of the relative absence of side effects..."*

Nardil has an excellent safety record—established by over 100 scientific reports, and confirmed by a minimal incidence of toxicity in more than several hundred thousand patients to date.

Full dosage information, available on request, should be consulted before initiating therapy.

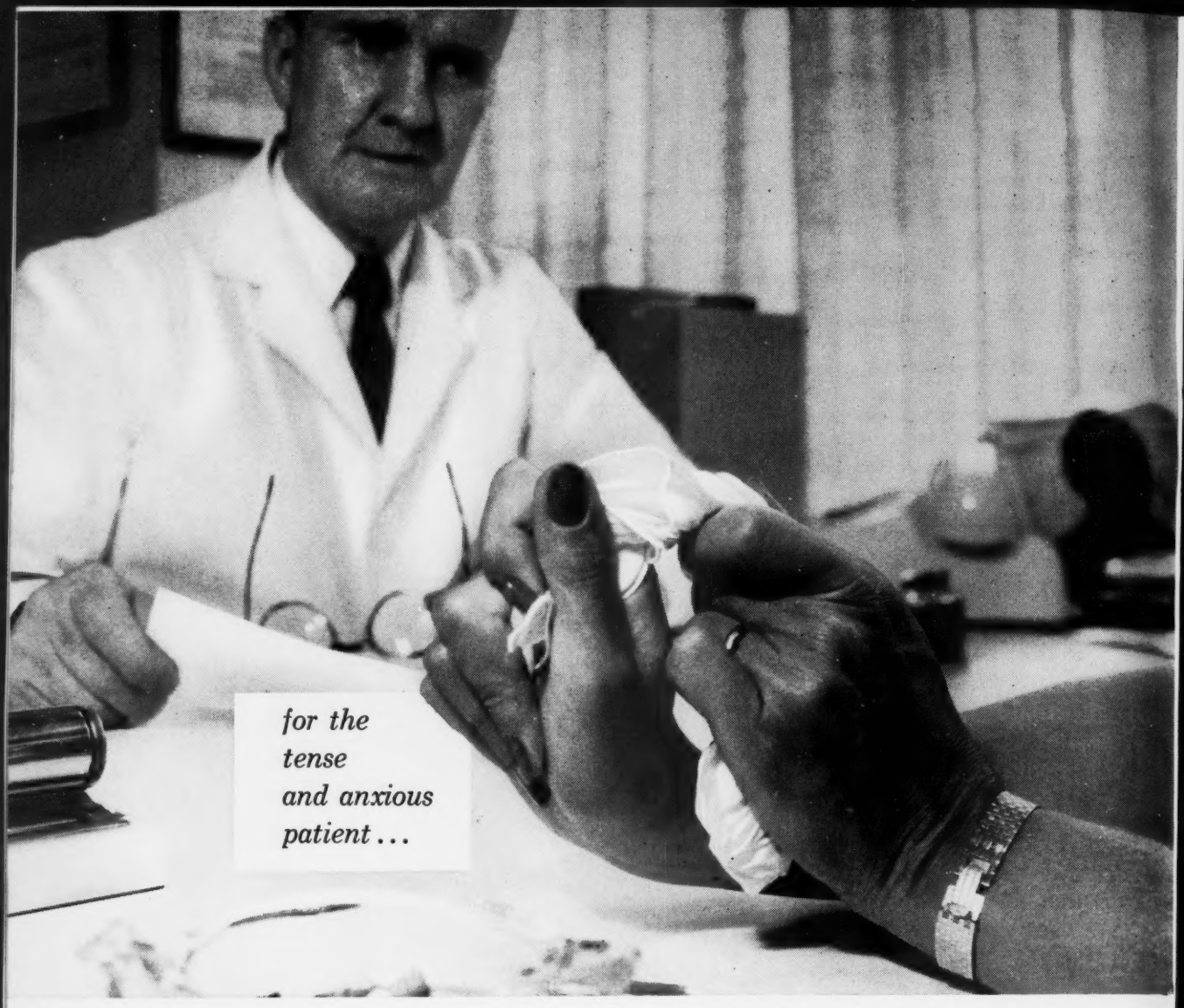
*Furst, W., M.D., F.A.P.A. (Attending Neuropsychiatrist, East Orange General Hospital, East Orange, N. J.): Psychopharmacological or Electrical Therapy of Severe Endogenous Depression, *J. M. Soc. New Jersey* 57:3 (March) 1960.

WARNER CHILCOTT

MORRIS PLAINS, N.J.

—PS11

makers of TEDRAL GELUSIL PROLOID PERITRATE MANDELAMINE



the only sustained-release tranquilizer that does not cause autonomic side reactions

- SAFE, CONTINUOUS RELIEF of anxiety and tension for 12 hours with just one capsule—without causing autonomic side reactions and without impairing mental acuity, motor control or normal behavior.
- ECONOMICAL for the patient—daily cost is only a dime or so more than for barbiturates.

Meprospan®-400

400 mg. meprobamate (Miltown®) sustained-release capsules

Usual dosage: One capsule at breakfast lasts all day; one capsule with evening meal lasts all night.

Available: *Meprospan-400*, each blue-topped capsule contains 400 mg. Miltown (meprobamate). *Meprospan-200*, each yellow-topped capsule contains 200 mg. Miltown (meprobamate). Both potencies in bottles of 30.

WALLACE LABORATORIES / *Cranbury, N. J.*

CME-4232

Although depression is a common component of problems seen in medical practice, the classical symptoms of depression are seldom obvious. Much more frequently, depression lurks in the background . . . is often masked by physical symptoms such as fatigue, insomnia, poor appetite and weight loss . . . is frequently detectable only by careful questioning.

When depression complicates the picture, Tofranil relieves or eliminates symptoms in approximately 80 per cent of cases within 2-3 weeks.

Detailed literature available on request.

Tofranil®, brand of imipramine hydrochloride: Tablets of 25 mg. and tablets of 10 mg. for geriatric and adolescent use; also, ampuls for intramuscular administration only, each containing 25 mg. in 2 cc. of solution (1.25 per cent).

Geigy Pharmaceuticals
Division of Geigy Chemical Corporation
Ardsley, New York TO594-61

No other drug

in psychiatry has

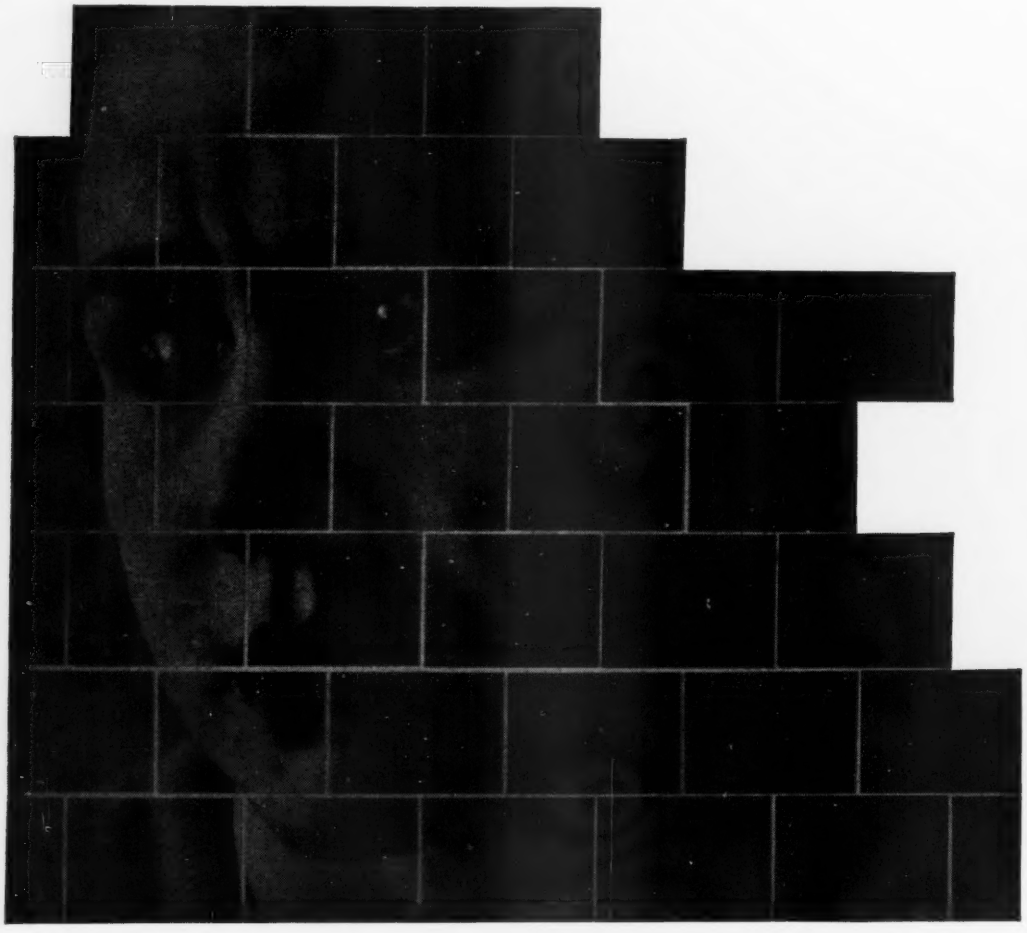
achieved the lasting foundation

that Thorazine® has in
brand of chlorpromazine

its seven years of clinical use–

- effectiveness
- relative safety
- extensive documentation

A fundamental drug in psychiatry.



Smith Kline & French Laboratories, Philadelphia SK&F leaders in psychopharmaceutical research

MEDICAL LIBRARY
HISTORICAL BUILDING
DES MOINES, IOWA

Volume XXII MAY 1961 Number 5

DISEASES *of the* Nervous System

A PRACTICAL JOURNAL ON PSYCHIATRY AND NEUROLOGY

Peripheral Personality Function in the Use of Psychiatric Drugs

EDWIN O. NIVER, M.D.

Irritability of the nervous system is like irritability of the skin. This is not merely a chance association, for the nervous system originates from the skin or ectodermal layer and like the skin serves to a large degree in a protective capacity. Persons suffering with decompensation or breakdown of function, that is those with psychoses or, in terms of our parallel condition, dermatoses, comprise a surprisingly small group among the tremendous number of neurotic persons, and this is most readily explained by the theory of constitutional predisposition or biologic inferiority of certain organs. The matter of constitution brings the role of the autonomic nervous system into consideration, for though it may not itself be a part of a particular disease process, it is frequently thrown out of balance by somatic reaction to such process.

One can also think of the skin as a sort of peripheral boundary for many types of nervous function. The analytic school of psychiatry has laid great stress on this area, believing that it approximates the associative sphere of the unconscious. The psychobiologist, too, is impressed by the need for a peripheral associative mechanism made up partly of skin and postural-muscle reflexes to serve as a sort of index-finder for brain function. In down-to-earth terms, the surface organs of the body appear the most logical locale for the role which relates the conditions being presently experienced to those which have previously been experienced in a similar position. Moreover, since emotion becomes evident through skin reactions and muscular attitudes, it seems reasonable to consider the peripheral part of the body as having a definite personality function which reacts to inner irritations and tensions as well as to those from the outside. One could postulate, therefore, that alterations in the irritability of this area might be a factor in mental disorders. It is possible that this portion of the body accounts for some of the symptoms of drug-induced psychosis due to lysergic acid diethylamide, as that substance is known to increase peripheral inhibitive activity.[1]

Actually, the physical therapies in psychiatry have always depended upon their action on the skin and surface circulation for their efficacy. At first hydrotherapy was used. This fell roughly into two types: the shocking or cold stimulating type; and the warm soothing type like the continuous-tub at body temperature. These were used without much sophistication and when attempted on a mass impersonal basis lost most of their effectiveness. But the principles of hydrotherapy come very close to striking at the essence of all therapy for it is now known that the psychotic picture occurs under two conditions: 1) where there is isolation and not enough external sensation; and 2) where there is sensory overload or just too much sensation from the outside.[2] Thus, in the situation of isolation, cold stimulating showers made sense; whereas for the excited patient or the depressive with sensory overload, a sedative bath in quiet seclusion could be most helpful.

I will not go into a long history of ther-

From Division of Research and Education, Mental Health Institute, Clarinda, Iowa.

Paper presented to Page County Medical Society at Clarinda, Iowa, May 19, 1960.

apy in psychiatry, but the basic principle of a cold nervous skin being relaxed and warmed, and a flushed feverish skin being cooled and soothed, seems to have been an incidental effect of most of our effective therapies, such as electroshock and insulin.[3] As we get into the modern drug therapies, these principles appear still to hold. The variety of therapeutic agents has become as numerous as the salves of the dermatologist, and the therapy itself has come to involve most of his maneuvers.

The use of drugs in medicine has always involved psychological effects. Paracelsus, shortly after the time of Columbus, introduced laudanum. Subsequently the opium type of drug earned an evil reputation because one could become addicted to it with a resultant deterioration of character and moral standards. Morphine profoundly disturbed the circulation of the skin, especially during the period of withdrawal. It was from the treatment of this condition that we learned to use insulin hypoglycemia in treating schizophrenia. Alcohol is another example; and more recently the barbiturates. Of course, most any drug can be abused, and when the so-called tranquilizers were introduced, the old fears were raised that these substances would cause demoralization. Actually, the pharmaceutical houses had themselves promoted these fears in their efforts to substitute the higher-alcohol type of sedatives, such as Placidyl, Noludar and Doriden, for the barbiturates.

Fortunately, most of the early types of tranquilizers, ataractics or psychotropic drugs offered no such threat. The closest to the old sedative type was meprobamate (Miltown, Equanil), which has about the same use as phenobarbital. However, newer more powerful agents are being developed which carry a correspondingly greater chance of being misused. One of these, Librium, has the interesting property of reducing the need to react aggressively in response to irritation. It has been called by some a "don't-give-a-damn" pill, and may even have a deterring effect on the compulsion to follow the first drink with a second.

The drugging of patients through the abuse of these potent tranquilizers has sociological, moral and legal implications in addition to those relating to medicine. There is an old dictum that may apply here: "The trouble with morphine is that it lulls both the physician and patient to sleep." It remains to be seen whether we shall have the wisdom to use these tranquilizers without permitting such abuses as to require regulatory statutes.

The term "tranquilizer" was actually introduced to cover substances of a somewhat different nature. These did not act primarily as over-all protective salves but rather had limited or specific actions upon the neurophysiology of the individual. In order to understand them, it is best to go back into some of the history,[4] for our knowledge of drugs and neurophysiology has developed hand in hand. The story begins with four drugs:

1) Curare, a South American arrow poison.
2) Nicotine, introduced by the North American Indian.
3) Muscarine, isolated from the most poisonous of mushrooms.
4) Epinephrine, from the chromatin substance of the adrenal medulla.

Neurophysiology really began with Claude Bernard who in the course of his studies with curare found that in physiological dosages the drug did not affect the contractility of muscle or nerve transmission but that it did prevent transmission from nerve to muscle. From this the idea of some sort of synapse with a special chemistry began to develop.

The idea was extended when it was found that nicotine specifically paralyzed transmission in the autonomic or visceral nervous system, and that muscarine paralyzed all types of peripheral transmission. The action of muscarine remained peripheral because it is a quaternary ammonium compound which is not soluble in lipids and hence cannot cross the blood-brain barrier.

The discovery of epinephrine was the natural result of trying to find out what made the adrenal medulla take stain differently from other tissues. Vulpian in 1856 discovered this property. The action of adrenal

extracts in raising blood pressure was discovered by Oliver and Schaefer in 1895. Finally the substance was synthesized in 1904. Today we know that epinephrine is one of a series of physiologically very active substances, chemically described as catechol amines because they are composed of dihydroxybenzene (catechol) and ethanolamine or derivatives thereof. It was soon found that epinephrine mimicked the action of the sympathetic nervous system, and the pattern in the vegetative nervous system evolved—one part the parasympathetic, stimulated by muscarine-like substance in small nonpoisonous dosage; and the second part, the sympathetic, stimulated by epinephrine.

The most influential figure in the evolution of our more modern ideas in this field was Sir Henry Dale. Dale was interested in studying the alkaloids of ergot. Two substances of particular interest had been found in ergot. Erwin in 1914 identified perhaps the most important of these, namely acetylcholine. The other substance, histamine, was actually isolated first by Barger and Dale in 1910 and independently by Kutscher the same year. Dale's contribution was to give us a better definition of the properties of acetylcholine and to coin the term "parasympathomimetic" to describe its actions.

The studies of Dale and others with physiological dosages of acetylcholine showed that it plays a key role not only at the synapse but also in nerve transmission. In fact, the action of this substance as a membrane depolarizer allows the electrolyte shifts which account for the electrical phenomena in nervous tissues. Moreover, the function of acetylcholine is so fundamental that it is involved in the action of many poisons. Generally, when its destruction is interfered with and it piles up, we get the type of poisoning seen with the bug-killers or strychnine, while the ability to produce such effects locally accounts for the action of curare and nicotine.

What is therapeutically more useful is the action of agents which impair acetylcholine function by diminishing its activity. These drugs, generally classified as atropine-like,[5] also have an evil reputation as poisons. Due to the slow course and obscurity of symptoms, atropine was a favorite with the medieval poisoners. In fact, the drug was named for Atropos, the oldest of the Three Fates, the one who cuts the thread of life with a scissors. The problem of excessive acetylcholine action of the autonomic nervous system has long been recognized under the designation of vagotonia, and the drugs used to control it have been atropine or atropine-like substances.

In dermatology, a similar condition is represented by neurodermatitis, where the ordinary picture is one of skin pallor due to a high level of capillary tonus originating from a cholinergic state, or in other words, excessive acetylcholine activity.[6] These patients do not complain of their pallor, but they have trouble because the skin secretions are too thick and also because they have hot flashes or episodes of compensatory prolonged abnormal vasodilatation. Evidences of this type of imbalance appear even in infancy in congenital hypertrophy of the pyloris. The psychiatric problem is derived from the fact that even as children these individuals are too independent and self-sufficient so that they do not develop adequate relationships to people. They have difficulty in communicating with the outside world which seems unfriendly and they feel tense and easily irritated. All these conditions can benefit from a tranquilizer with a strong atropine action, and there is a wide variety.

The second substance found in ergot by Barger and Dale was histamine, which means simply tissue amine. That histamine appears as the result of tissue injury is well known. I once described it as the "hormone of reality," for when tissue injury and death occur, it is time for the individual to get down to the fundamental issue of self-preservation and seek a variety of devices and types of isolation to protect himself. Histamine interacts with the sympathetic amines and is partially antagonized by them. It was to be expected, therefore, that the antihistamines would have psychological effects. When it was noted that the antihistamines had a calming or tranquilizing effect, their

use in psychiatry spread rapidly. Chlorpromazine (Thorazine), which came into general use in this country about five years ago, revolutionized psychiatry.

By a curious coincidence, at the same time that chlorpromazine was entering the picture, the tranquilizing properties of Rauwolfia or "snake root" from India began to be appreciated. The alkaloids of this root were studied and refined, and the drug reserpine was introduced. These drugs in some ways acted like histamine in draining off the catechol amines, thereby relieving the hair-trigger sensitivity of a person with an overactive sympathetic. In any case, one can say that they had an action which made people behave less angrily and more realistically. This proved of great benefit in hypertension where small doses are effective and offered our best recourse in extreme excitements where massive doses are required.

As a means of sensory isolation reserpine goes far beyond the continuous-tub because it produces a pallid tense skin-surface and a tendency for the individual to draw into his shell like a turtle. This is because a massive reduction of sympathetic effects results in a swing in the balance to parasympathetic preponderance. This is why one must be cautious about the use of reserpine in gastric ulcer and other disorders where vagotonia is suspected. This pallid skin represents a condition of sensory isolation which can result in depression in those patients with excessive dependency needs. Many patients prevent this by filling in their lack of excitement in reality with dreams of a passionate nature.

So much for the fields that can be traced to the work of Sir Henry Dale. However, having raised the issue of depressive reaction, it would seem in order to consider further the constitutional types in which epinephrine overactivity or sympathetic preponderance is suspected. As children, these individuals tend to be emotionally unstable, impetuous, tense, and restless. They are vigorous in activity but are apt to show fatigue. In their emotional and social life, they appear to be more dependent on approval than the average. In these patients, the subcutaneous arterioles are dilated and some are periodically subject to psoriasis.[7] Such an individual is believed to be the one who easily develops depression following the loss of someone or something upon whom he depends.

The reaction of the skin in the patient with an overactive sympathetic nervous system is not well understood. It is only recently that it has been appreciated that the catechol-amine twin of epinephrine, norepinephrine, is the agent responsible for arteriolar constriction. However, early in tranquilizer research it was discovered that many of the active substances affected the chromatophores of the skin of fishes, and this was used in searching for new therapeutic substances.[8] Now the intensification of the skin markings in fish appear to be due to the hormones intermedian from the pituitary, but it was evident that there were local substances which had a contractive fading action. This made us aware of a new substance important in the chemistry of sympathetic activity, namely serotonin. In this action on the chromatophores, serotonin had twenty times the effect of other sympathetic amines. When the serotonin was antagonized by adding yohimbine to the water, some fish showed a beautiful nuptial coloring, which fits in with its action in releasing skin tensions in humans so that they feel more loved.

The discovery that iproniazid (Marsilid) acting as a monoamine-oxidase inhibitor held back the release and built up the level of serotonin and norepinephrine and also benefited depressions, led to the development of a whole series of monoamine-oxidase drugs which made the depressed patient, who felt alone, feel less dependent and warmer toward the outside world. The difficulty is that many of these drugs are toxic to the liver. Heavy metals, used in the past similarly for their tonic effects, also produce hepatic toxicity. Thus it would seem that just as we would use a type of astringent on a weeping skin, we use the same type of drug on a weeping discouraged patient. If the patient is angry and agitated, these drugs will make him worse, for they seem

to frustrate a need to unload some of his irritation. To use such drugs would be a little like sealing an infective agent under an ointment.

To sum up so far, what we have presented gives a picture of what we are doing in psychiatry from one angle—that of the reaction of the body surface to the world, whether the skin is flushed, warm and relaxed as is a baby in its mother's arms, or pallid and cold, with the capillaries contracted and drawn in like the head and appendages of a turtle. But even when dealing with the skin, one has to consider the reaction of the body surface to the events of inner experience. Many of our drugs act not at the peripheral skin or vegetative levels but rather directly on the central nervous system.

With all drugs, there is the problem of the extent to which the drug acts peripherally and how much of it passes the blood-brain barrier. Often most of the action is peripheral, as in the case of atropine. With this drug the peripheral action is strong and paralyzing while centrally we have a weak action which is stimulating. A drug of the atropine type which readily passes the blood-brain barrier, like hyocine or scopolamine, is sedative. We are all familiar with the analgesic effects of scopolamine in labor. This is the principle of some of the newer drugs like benactyzine and Dornwal. A large dose of hyocine is still good treatment for violently excited patients.

The matter of peripheral and central action is also important in stimulants. For example, the sympathetic stimulant dextroamphetamine has considerable peripheral action which makes it useful in depressions. By way of contrast, desoxyephedrine, which acts centrally on the sympathetic, may be used in combating the indolence and sleepiness of certain types of schizophrenics.

Usually the mark of a drug which passes the blood-brain barrier readily is its low dosage. With such drugs, one can get central effects with dosage levels below those required for peripheral action.

There remains one phase of the manipulation of inner neurophysiology which is only recently being appreciated. That there is a close relation between associative movement and the associative mechanism in thinking. Our control over this process seems to involve activating muscles.[9,10] This can be demonstrated on the electromyograph. Thus, it is not surprising that agents which affect muscle tonus have profound effects on the thinking process. Many of these agents reduce anxiety either by giving a better sense of control or with the ataxia produce the "don't care" attitude.

Actually the tonus-increasing action of chlorpromazine, reserpine, and some of the other tranquilizers was discovered accidentally because in large dosage these agents produced the symptoms of Parkinson's disease, which are rigidity and loss of associative movements. At first these were looked upon as unpleasant side-effects and treated heavily with atropine-like antiparkinsonian drugs. Later, the possible therapeutic value of some rigidity was appreciated, and the perazine-type drugs like Compazine, Stelazine, Trilafon and Prolixin were introduced with great success. It appears that where a patient is disturbed by his thoughts, a slight rigidity is reflected as a sense of strength. These drugs often stop the hallucinatory process entirely. This whole mechanism is poorly understood, but it appears that the patient experiences an urge to muscular activity which can be so extreme as to cause agitation but usually only causes a more extroverted attitude.

At the same time a relatively opposing principle of tranquilizing through a reduction of muscle tonus was being explored. As reported by Grundfest[11] and others, there are two types of nerve synapse which are selectively affected by drugs. The first of these is the inhibitory synapse, which is paralyzed by strychnine. It has long been known that strychnine increases spinal-reflex irritability, causing an enhancement of the startle reaction, so that it was to be expected that agents having the opposite effect would make patients less nervous and jumpy. The first of these was mephenesin, but today we have even more useful drugs such as meprobamate, Trancopal and Rela.

The second type of synapse is excitatory

in function. It can be stimulated by the convulsant drug metrazol, as is done when this substance is given to the aged to increase alertness. An agent which paralyzes this synapse might be expected to have some of the properties of curare in that it would interfere with self-activation and cerebellar effects on muscle tonus. Librium, which shows this type of effect in relaxing spastic torticollis and is anticonvulsant, appears to oppose metrazol in the same fashion as mephenesin opposes strychnine. This drug appears to prevent people from getting all steamed up about things and yet, since the startle reaction remains active, they are kept awake by the normal run of activity.

It seems rather curious that this substance tranquilizes by reason of properties that are almost directly opposite to Stelazine and similar agents. However, this can be understood when we take cognizance of the fact that while some patients are alarmed at things getting out of control or an inadequacy of sensation, others get into difficulty because they have sensory overload and feel compelled to control everything. Stelazine is thus like a stimulating shower, while Librium is like a warm soothing bath.

As mentioned earlier, in practice the therapeutic value of drugs that merely soothe is limited because they may foster passivity when the patient's situation requires action. However, there are situations where hostility is so intense that it cannot be directed to effective aggressive action, and in such situations Librium can be most helpful.

In terms of our over-all approach, we must consider these drugs which act through muscle relaxation as being types of internal salve which enable the patient to meet the world and its painful experiences with a normal degree of stoicism instead of with the hypersensitivity of the neurotic person.

Summary and Conclusions

I have offered a picture of the action of tranquilizers or psychotropic drugs that is focused on the skin or periphery of the body. This picture is not a fortuitous development but the result of accumulated experience with empirical therapies in psychiatry plus special studies of the actions of agents like epinephrine, histamine, and Mecholyl which, coincident with pallor, flushing, and other types of vasomotor reaction, appear to alter the attitude of the patient.[3] In this presentation it has not been possible to do more than consider the various principles involved in drug therapy, since the varieties of drugs and dosage schedules are so numerous. However, it would seem proper to end this discussion with an enumeration of a few practical impressions which should prove useful:

1. If one wants a simple soothing effect, or for the patient to relax or give up, there is nothing wrong with the barbiturates and they are cheap.

2. If one has a vagotonic or neurotic tension state, good old tincture of Belladonna or the atropine drugs are indicated. When a new drug comes in, look at the side-effects. See if it dries the mouth, blurs the vision, and gives other signs of parasympathetic impairment. If it does, it will help by making the patient more relaxed and outgoing, but usually this effect comes at just about the point he has side-effects. If the patient is paranoid, it will make him more projective and aggravate his condition, so one must watch for this type. There is a host of substances with atropine action: the anti-Parkinson drugs, the antihistamines, and those phenothiazines which do not readily produce Parkinson symptoms.

3. For the schizophrenic patient who has had a reasonably severe attack, it is my belief that he should have 50 to 150 milligrams Thorazine at bedtime indefinitely. If he develops photosensitivity, 25 to 50 milligrams of Vesprin may be substituted.

4. The use of the antidepressants is fraught with difficulty. Before the recent era in this field, we used Dexamyl. Probably it is still the best one to try first, provided one makes sure the patient gets a good night's sleep, either with one of the long-acting higher-alcohol sedatives or with barbital. After this, perhaps Deprol, which combines meprobamate the muscle-relaxer with benactyzine, an atropine-type substance which works centrally, is relatively dependable. The monoamine-oxidase inhibitors are

a little like giving gold therapy in arthritis—some can get results without too much trouble from hepatitis. However, once started they have to be continued for a long time, so their use is quite an undertaking. They are said to be best for individuals with psychomotor retardation. Tofranil has been widely acclaimed, but my impression is that it acts simply by giving an atropine type of peripheral paralysis so that the sympathetic nervous system is released and the patient has a series of flushes and sweating attacks. Sweating can be a rather soothing experience for the dry-skinned patient with a strong cholinergic tension, but in modern society one scarcely dares to admit it. In my experience, both Tofranil and the monoamine-oxidase inhibitors like Catron, Nardil, and Niamid at first give patients a free-floating hostility that is disturbing if they are already struggling to control their hostile feelings.

5. The use of reserpine in the small dosage used to control hypertension would appear to be the most logical approach to treatment of the patient with the overactive sympathetic system. The danger of depression and suicide limits its use to specially selected patients, and necessitates close supervision. There is a possibility that it could alleviate overdependent tendencies in young patients and avoid distortions in personality development.

6. The use of drugs which can produce parkinsonism, like Stelazine and Prolixin, to alleviate anxiety and foster a sense of competency, is an excellent therapy for a few months. Certainly an occasional rest or change of medication should be worthwhile.

7. Finally, one must keep on the look-out for agranulocytosis, signs of adrenal insufficiency and, in the case of the monoamine-oxidase inhibitors, hepatitis.

REFERENCES

1. Purpura, D. P.: Experimental Analysis of Inhibitory Action of Lysergic Acid Diethylamide on Cortical Dendritic Activity. *Ann. New York Acad. Sc.*, 66:515, 1957.
2. Miller, J. G.: Information Input Overload and Psychopathology. *Am. J. Psychiat.*, 116:8:695, 1960.
3. Niver, E. O.: Personality Reaction to Adrenalin and Histamine. *J. Clin. & Exp. Psychopath.*, XIX:3:202, 1958.
4. Brooks, C. McC., and Cranfield, P.: "The Historical Development of Physiological Thought." *Hartner Publ. Co.* (N.Y.), 1959.
5. Maherer, P. R., et al.: Atropine-like Poisoning Due to Tranquilizing Agents. *Am. J. Psychiat.*, 115:5:337, 1958.
6. Obermayer, M. E.: "Psychocutaneous Medicine." *Charles C. Thomas,* Publr., 1955.
7. Susskind and McGuire: The Emotional Factor in Psoriasis. *Scot. Med. J.*, 4:503, October 1959.
8. Turner, W. J.: Effect of Rauwolfia Alkaloids and Related Substances on Chromatophores, 1. *Dis. of Nerv. Syst.*, XIX:2:53, 1958.
9. Rorschach, H.: "Psychodiagnostics." *Verlag Hans Huber,* Berne, Switzerland, 1942.
10. Whatmore, G. B., and Ellis, R. M. Jr.: Some Motor Aspects of Schizophrenia: An E.M.G. Study. *Am. J. Psychiat.*, 114:10:882, 1958.
11. Grundfest, H.: General Physiology and Pharmacology of Synapses and Some Implications for the Mammalian Central Nervous System. *J. of Nerv. & Ment. Dis.*, 919:128:6:473, June 1959.

Sex, Anger and Anxiety: Intrapersonal Interaction in Married Couples

G. WINOKUR, M.D., and W. R. GASTON, A.B.

The relationship of operationally defined variables of sexuality to psychiatric illness has been considered recently by Winokur, Guze and Pfeiffer[1] and it has been noted that such variables do not differentiate between mixed groups of neurotics, psychotics and controls. On the other hand, hysteria as a diagnostic entity seems to be specifically associated in the female with frigidity.[2] Also, many observers have noted marked disinterest in sexual relations in patients with significant depression of mood and heightened sexuality and promiscuity in manias. Little else is known about the relationship between sexual behavior and other types of behavior and affects, although intensively studied individual cases provide some clues. The present study is an attempt to investigate sexual activity, the symptoms of anxiety and feelings of anger in a group of non-psychiatric subjects and to determine whether such observations vary in any systematic way with each other directly or inversely.

Subjects and Methods

The subjects of this study were the husbands and wives of 20 marriages. None of these 40 individuals had ever had psychiatric care.

The subjects were contacted through two social organizations attached to religious organizations. One of these was a suburban church in a solid middle class community and the other was a religious fellowship with a rather intellectual, prosperous membership. Permission was granted by the authorities for the membership to be approached for serving as subjects in the study. Initial contact was made by mail; 37 married couples were circularized; 23 couples responded afirmatively and agreed to be interviewed. Because one member of each of three marriages had had psychiatric treatment, these protocols were discarded for both husband and wife. This left 20 husbands and 20 wives as the subjects of the study. The type of subjects is best described by the fact that all 20 of the men and 18 of the 20 women had attended college. The other two women were high school graduates. All of the subjects were white. The age range for the subjects was between 30 and 40 years.

After initial contact one of the authors went to the subject's home and conducted a structured interview with husband and wife. The second member of the marriage was seen immediately after the interview with the first, allowing no time for interaction between husband and wife. Neither member knew the specific content of the interview as both had been told only that it was concerned with relationships in marriage.

Results

Reliability of the Structured Interview:

Because a number of questions on the structured interview were concerned with matters of occurrence and answers were requested of both husband and wife independently, it was possible to check on the reliability of the answers. The questions dealt with 1) frequency of sexual relations in two week period prior to interview, 2) usual frequency of sexual intercourse, 3) period of most sexual receptivity in wife's menstrual cycle, 4) who amongst marital partners initiated intercourse most frequently, 5) irritability of wife during any specific phase of menstrual cycle, 6) whether or not quarrels were settled in bed with intercourse.

For these six questions, there were 120 possibilities for agreement or disagreement between marital partners. On one protocol the answer was too vague to be scored. Of the remaining 119 possibilities there was es-

From the Department of Psychiatry and Neurology, Washington University School of Medicine, St. Louis, 10, Missouri.

sential agreement on 105. Thus husband and wife agreed 88% of the time.

The major number of disagreements accompanied the question concerned with the wife's receptivity for sexual relations during a specific part of the menstrual cycle. Here 13 couples agreed and 7 disagreed accounting for half of the 12% of disagreements.

Agreement occurred even if the answers were somewhat socially unacceptable. Of the 19 possibilities for agreement on the question concerned with settling arguments with intercourse, there were 18 agreements. Of these agreements there was one unqualified yes, one couple who agreed that it occurred occasionally and one couple who said this had occurred once.

Symptoms of Anxiety:

An effort was made to assess the presence of symptoms of anxiety in the subjects. The questions were concerned with whether there had ever been present such symptoms of anxiety as were mentioned by Wheeler, White, Reed and Cohen in their study of neurocirculatory asthenia.[3] Examples of these symptoms are shortness of breath, palpitation, chest pain, faintness, apprehension, weakness and trembling. Inquiry was made about 21 such symptoms in all. No attempt was made to determine a psychiatric diagnosis in the subjects. Thus, it is not possible to rule out the possibility of the symptoms being associated with another psychiatric illness besides anxiety reaction.

For the females, the range of anxiety symptoms was 1 to 11; the mean number of symptoms was 4.7. For the males the range of symptoms was 0-15; the mean number of symptoms was 5.8. For the combined groups of males and females the mean number of symptoms was 5.2.

Frequency of Sexual Intercourse:

Each subject was requested to indicate the number of times he had had sexual intercourse, both in the two weeks prior to the interview and usually in the course of marriage. As has been stated above on the section on "reliability" the husband's response was almost always the same as that of the wife. On four occasions the husband and wife differed by more than one time when asked about usual frequency and on no occasion did they differ by more than one time concerning the frequency of intercourse in the last two weeks prior to the interview. For the 40 participants the mean frequency of intercourse usually was 4.3 per two week period, and for the past two weeks, 3.5 experiences.

Anger:

Each interviewee was asked to estimate the amount of times he had been angry in the last two weeks prior to interview. Episodes of anger directed at spouse, children, friends, co-workers and boss were considered.

An effort was made to determine how the anger was expressed (fighting, arguing, throwing things, raising voice, displacing, keeping it to one's self) and what the response was of the person toward whom the anger was directed.

The 20 women reported 157 episodes of anger, the mean being 7.6 episodes; the men reported 182 episodes, the mean being 9.1 episodes. The mean number of episodes for all the participants was 8.3 episodes. The major direction of the episodes of anger was towards the children of the couples. Seventeen subjects reported that they had been angry at their children more than 10 times over the two week period and another five had been angry more than six times. Always the anger was expressed overtly. In contradistinction to this only two subjects had been angry at their spouses more than five times in the two week period. On the rare occasions of anger toward the spouse, 15 subjects reported that this was not expressed overtly. Only one episode of anger toward friends was reported but four males reported more than 10 episodes of anger toward coworkers and two males reported many episodes of anger toward the boss. It is of interest to note five out of the seven subjects reporting more than six episodes of anger to adults reported two or less episodes of anger directed toward the children.

Comparison of Anger, Anxiety and Sexuality:

For each variable the subjects were divided into 2 groups: 1) those above or at the mean for the variable, and 2) those below the mean. The means used for each individual were the male and female means for anger and anxiety and the combined mean for sexual episodes occurring within the past two weeks. Three 2 x 2 contingency tables were constructed and the relationship was tested by the x^2 test for two independent samples, incorporating a correction for continuity. Following are the three tables and the results.

	Sexual Intercourse	
	Mean or Above	*Below Mean*
Mean or above	8	15
Anger		
Below Mean	12	5

X^2 3.69 df 1
$.05<P<.1$

Conclusion: There are no reliable inverse relationships between sexual episodes and episodes of anger. There are trends indicating an inverse relationship.

	Anxiety	
	Mean or Above	*Below Mean*
Mean or Above	10	13
Anger		
Below Mean	9	8

X^2 .074 df 1
$P<.8$

Conclusion: There are no reliable relationships between the variables of anxiety and anger.

	Sexual Intercourse	
	Mean or Above	*Below Mean*
Mean or Above	8	11
Anxiety		
Below Mean	12	9

X^2 .41, df 1
$P<.5$

Conclusion: There are no reliable relationships between episodes of sexual intercourse and symptoms of anxiety.

Subject's Evaluation of Relationship of Sexuality and Anger:

The above relationships were put to the subjects in such a way as to require them to tell whether they thought anger made for more or less sexual activity and whether sexual activity made for more or less anger. This is summarized below:

	REPORT OF					
	—Husband—			*—Wife—*		
	More	Less	No Difference	More	Less	No Difference
	%	%	%	%	%	%
Effect of anger on sexual relations	0	55	45	0	60	40
Effect of sexual relations on episodes of anger	0	70	30	0	65	35

Clearly, the evaluation of the subjects is in disagreement with the other data.

The Question of Sexual Satisfaction:

Of both males and females 90% proclaimed themselves satisfied with their sexual life; 95% of males felt they received as much pleasure out of sexual relations as their spouses, whereas only 80% of females felt this was true. Ninety-five per cent of both males and females felt their spouses were satisfied with their sexual lives.

Discussion

In setting up a research of this nature the first question must always concern the method used to collect the data. In the present study the structured interview was used. Such a term implies a number of points. The interviewer has a paper in front of him which contains all of the pertinent questions. However, it requires a skilled interviewer to explore the answers in such a way that the responses are totally understandable. Further, any of the ramifications of the responses must be explored and recorded. This technique enables the interviewer to cover pertinent material. All protocols contain comparable systematic data.

The structured interview is not an innovation. It is, in fact, just a variant of the history and review of systems used by the phy-

sician in his everyday workup of the patient. It functions best when an interviewer or physician deals with symptoms or easily observable facts rather than attitudes, opinions or very complex observations. These latter classes of answers are best obtained if they are defined operationally in terms of the former classes. As an example of this we find that in the results of this study it is clear that simple observations such as frequency of intercourse are better handled than more complex determinations such as the time in the wife's cycle when she is most responsive sexually.

Emphasis is to be placed on the fact that questions in the structured interview are not to be asked in a stereotyped fashion. Allowance is made for individual differences and appropriate terms are used for each subject. Also the interviewer draws out the person in order to obtain a full account of the situation and the answers are frequently recorded in a verbatim manner. It is clear from the above that clinical skills are necessary to administer the structured interview. Whether such skills can be obtained only with considerable clinical experience as a background or whether any bright interviewer can be relied upon to make the proper judgments with practice is an open question.

Some question may be raised as to whether a person will divulge very personal sexual material in any valid fashion. Built into this study was a safeguard of that, namely the spouse's response to the same questions. It was clear from the 88% agreement that the reliability was high. Even when the answers went counter to what might have been expected there was good agreement. An example of this was the response to the question concerning the settling of quarrels in bed. One couple agreed on an outright yes to the question; one couple said that it occurred once; and one couple agreed that it occurred occasionally. Further, those couples who had very high and very low frequency of sexual relations also generally agreed. As a consequence of these kinds of data, it seems reasonable to assert that the structured interview may be used to glean even very personal sorts of information as long as this information is clearly specified and as long as the interviewer uses his position to clarify any vagueness.

As far as the content of the study is concerned, it is of importance to note that there are few studies dealing with the interrelationships of sexuality with other types of behavior and affects in people. There are, of course, a number of animal studies. Gantt found that sexual excitation increased the latent period to fighting in a cat[4] and that ejaculation was associated with an abatement of the experimentally produced symptoms of anxiety in a dog.[5] Guhl, *et al.* observed that a cock placed in a situation with three hostile and superior cocks and receptive females would not copulate even after the hostile cocks were removed.[6] It has been noted in rats that hunger was a more potent drive than that of sexuality.[7] However, it is impossible to relate these findings in any adequate manner to similar situations in humans.

Generally, interactions between human sexual behavior and other behavior have been considered in two ways. There is the clinical impression that adequate sexual activity is incompatible with anger or anxiety. On the other hand, there is the possibility that high sexual drive and vigorous episodes of anger and hostility are just reflections of a high state of individual excitability and will have a direct relationship. Two studies[8,9] indicate that unhappy couples, even those on the point of divorce have sexual relations almost as frequently and sometimes more frequently than happy couples. It might also be considered that the unhappy have more periods of intense anger than the happy couples.

The present investigation attempted to get information about anger and sexuality in two ways; by asking the subjects about relationships between anger and sexuality and by tabulating the reported number of episodes of anger and sexuality and then determining if there was any reliable relationship. The majority of participants in the study said there was an inverse relationship between sexuality and anger but when the

reported occurrences were compared there was no relationship of any note. This difference may be explained in three ways. First, it is possible that sexual relations and episodes of anger are inversely related but that such effects are short lived and have little to do with the frequency of sexual and social relations over a long period of time. Second, it is possible that the subjects were, in fact, just noting that in a period of good feeling and sexual satisfaction, social relations were good and anger improbable; or in a period of anger it was difficult to feel positively enough about the spouse to have sexual relations. Third, it is possible that there is no relationship and the subjects were expressing a set of expected attitudes rather than facts. The animal studies of Gantt would tend to support the first possibility.

Finally, it is of note that the great majority of these subjects considered themselves satisfied with their sexual lives and felt that their sexual satisfaction was in keeping with that of their spouse. However, two husbands were dissatisfied, one because he would have liked relations more frequently and the other because it was "hard on me" to reach a climax at the same time as his wife. Two wives were dissatisfied, one because she did not "relax" and only had orgasm about 10% of times she had relations; the other because she was "not responsive" and also only had about 10% orgasms. When a female reported less satisfaction than spouse it meant that she did not have orgasm very frequently in intercourse. In general, however, this group of subjects were surprisingly pleased with their sexual lives.

Summary

1. The structured interview is shown to be a reliable tool for getting pertinent data on sexuality.

2. No reliable relationships were noted between frequency of sexual relations, episodes of anger and symptoms of anxiety as reported by the subjects.

3. Most of the subjects thought there was an inverse relationship between anger and sexuality.

4. Most of the participants in the study felt their sexual lives were satisfactory and that they gained as much satisfaction out of sexuality as their spouses.

5. Middle class subjects usually direct their anger at their children rather than at significant adults.

REFERENCES

1. Winokur, G., Guze, S., and Pfeiffer, E.: Developmental and Sexual Factors in Women; A Comparison Between Control, Neurotic and Psychotic Groups. *Am. J. Psychiat.*, 115, 1097, 1959.
2. Robins, E., Purtell, J., and Cohen, M.: Observations on Clinical Aspects of Hysteria. *J.A.M.A.*, 146, 902, 1951.
3. Wheeler, E. O., White, P. D., Reed, E. W., and Cohen, M.: Neurocirculatory Asthenia. *J.A.M.A.*, 142, 878, 1950.
4. Gantt, W. H.: Disturbances in Sexual Function During Periods of Stress, in "Life Stress and Bodily Disease, A.R.N.M.D., Vol. XXIX, *Williams and Wilkins Co.*, Baltimore, 1950.
5. Gantt, W. H.: "Experimental Basis for Neurotic Behavior," *Paul B. Hoeber, Inc.*, New York, 1944.
6. Guhl, A. M., Collias, N. E., and Allee, W. C.: Mating Behavior and the Social Hierarchy in Small Flocks of White Leghorns. *Physiol. Zool.*, 18, 365, 1945.
7. Munn, N. L.: Psychology: "The Fundamentals of Human Adjustment," *Houghton Mifflin Co.*, 1951.
8. Dickinson, R. L., and Beam, L.: "A Thousand Marriages: A Medical Study of Sex Adjustment, *Williams and Wilkins*, Baltimore, 1931.
9. Terman, L. M.: "Psychological Factors in Marital Happiness. *McGraw-Hill*, New York, 1938.

The Functional Structure of the Psyche

Z. O. YOUNG, M.D.

Regarding the importance of *structure* it should be obvious that the more that is known about the structural nature of the substance with which one is working, the more potentiality one has of realizing *what* is *possible* and of achieving the *possible*. I hope to encourage consideration of the possibility that we can learn *more* about the functionally real structure of the psyche and that we can come to a more precise understanding of what *is* happening or *may* happen in a given individual patient.

We are all familiar with the Freudian concepts of psychic structure (ego, superego and id). It seems to me that Freud considered the unconscious mind as an unthinking, non-purposeful, disorganized conglomerate of suppressed desires and forgotten experiences sometimes in association with each other. It is as if the "unconscious" could only respond automatically and without individuality. He does indicate that he believed splitting of consciousness (double conscience, *condition seconde*) to exist in every case of hysteria.[1,2]

Jung formed the opinion from his clinical experience that Freud's functional divisions did *not* satisfactorily explain psychic structure and he formulated new concepts of the psyche's functional structure. He enumerates three main subdivisions, the conscious self; the unconscious self also called the *personal* unconscious and the *collective* unconscious. The personal unconscious is in turn subdivided into a number of units such as: (1) The suppressed opposites to the conscious attitudes grouped in a conglomerate called the "shadow"; (2) The *innate* and *acquired* psychic characteristics of the *opposite* sex called the "anima" in the male and the "animus" in the female; (3) A unit functioning as the center of the whole psyche with integrative potentialities called "the self" and others. Jung conceives of these units as functioning as identities with awareness of themselves and of some of the other units of the whole self. He calls them "autonomous complexes." To illustrate this point of view, note in his *Two Essays on Analytical Psychology* in the chapter regarding "Anima and Animus,"[3] he states that he believes a man is quite right to treat his Anima as an autonomous personality and to address personal questions to her and to *expect* and *get* answers from her.

McDougal[4] conceived of the psyche as composed of functional components called monads which were partially autonomous and partially interdependent. The monads in turn were grouped into larger functioning units, an hierarchical system as in the army from private to commander in chief. Failure in communications or in agreement might explain conflict and inability to integate the units into an orderly and stable whole.

Edmund Bergler[5] proposes that there is a basic neurosis stemming from childhood insecurity with mother because of the misunderstanding of her good intentions. According to his theory the *infant* forms the attitude of being a cruel mother's helpless *victim* described by the words "poor little me." The infant turns to self pity, getting pleasure out of pain and becoming masochistic. The superego or damonion disapproves of the pleasure from pain and prosecutes legalistically the masochistic unit thus becoming "like" mother and perpetuating the vicious cycle. Another portion of the self, the ego, is believed to act as an intercedent in this conflict attempting to settle the dispute much like a lawyer interceding between the judge and the accused. Bergler's discussions strongly suggest that he treats these units as able to conceive of their *own* purposes and to promote them much like autonomous individuals relating to each other *and* to be treated with *individual* understanding and attention.

I have established direct *two way* communication with some of the identities which lie outside of the conscious mind's awareness in some patients. They have told me persist-

ently, even emphatically, that each one is aware of the significance of the material, such as a dream, *it* has produced. Each has backed it up by knowing a dynamically sound and often verifiable reason. No other part of the mind admits *it* elected to think of the material, while this one unit states it *did* elect to think about the contents and can explain why. Furthermore it can add missing details, e.g. about a dream, that the conscious mind had missed.

Some of my colleagues have thought these phenomena were the product of suggestion and the patient's *suggestibility* or *wish* to *please*. They have not had the experiences that I have had with some of these identities in which I have spent hours attempting, with varying success, to convince an identity that it would be better off to change an attitude. This includes understanding the *origin* and *function* of the attitude. When the individual unit that *has* the attitude decides to change it, it does so *and not before,* and an appropriate shift or change is also noted in the total individual. The proof is, pragmatically speaking, that *it works,* that is, in so far as the attitude has been affecting the total individual, that individual experiences a change consistent with the change in attitude and not until then. Note that I emphasize attention to *attitudes* and *not* the *removal of symptoms.*

The technique or method used for establishing communication may be as simple as saying "I am going to speak to that portion of your mind from which that thought (or dream or attitude) came and I want your mind to let *it* answer me without interference from the rest of the mind." One may then ask appropriate questions just as one would question the conscious mind and one may or may not get answers. Sometimes the patient will automatically go into a trance and then answer. Sometimes the conscious mind relays spontaneous thoughts or pictures which are in answer to the question much as it may do in free association. Sometimes, frequently in fact, the conscious mind attempts to answer by itself.

In other patients when this approach does not produce satisfactory participation, hypnosis is used and the same type of approach is then made again. After exerience has accumulated, the frequency of my success in establishing communication has increased. Hypnosis does not *eliminate* the source of resistance and I usually approach the source of resistance first. When verbal communication is not forthcoming, finger movements (or other muscular responses) may sometimes be used according to a code agreed upon to answer questions such as a different finger being moved spontaneously for "yes," "no," "I don't know" and "I don't want to answer." What I have done is reproducable. Others have employed similar techniques with similar results.

I have found as many as eight structural components in one individual with distinct delineation as to identifying characteristics as well as each conceiving itself as being distinct from the rest. All of the components except the conscious mind are aware that there is at least one component unit beside itself, whereas the conscious mind may be unaware that there is any other part of the mind at all and may think *it* is all there is. Some component parts object to the idea of being a *part* of anyone and insist they are *individuals* and may resent the presence of the individual who came for treatment. Others, especially the one with *integrating function,* may readily speak of a relationship to the others and conceive of a whole made up of the individual parts. It may also dislike the presence of one or more of the other entities and may suppress it or persecute it. In the May 1960 issue of the *Archives of General Psychiatry,* there is an article on "Hypnosis and Pain." Eugene Kaplan states that a 20-year-old male, under hypnosis, had no awareness of pain from needle punctures according to the verbal report from his "conscious" mind. Meanwhile the right hand had automatically written "ouch, damn it, you're hurting me." If you understood the significance of the divisions of consciousness of which I have been speaking, you would understand this otherwise puzzling phenomena. You would also realize it was not just "suggestibility." The mind functions as units

that may dissociate from each other and maintain separate identities.

These are not new findings. They were known and published in 1889 by two Frenchmen, Pierre Janet and A. Binet. William James recognized the importance of their findings and quotes them in his book *Principles of Psychology*.[6] They have shown that during the times of hysterical anesthesia and coexisting with it, sensibility to the anesthetic parts is also there, in the form of a secondary consciousness entirely cut off from the primary or normal one, but susceptible of being tapped and made to testify to its existence in various odd ways which are described in detail.

William James concludes his extensive discussion of the subject with the statement

> "It must be admitted, therefore, that in *certain persons*, at least, *the total possible consciousness may be split into parts which co-exist but mutually ignore each other* and share the objects of knowledge between them. More remarkable still, they are *complementary*. Give an object to one of the consciousnesses and by that fact you remove it from the other or others."[7] (Italics by author.)

I have discovered similar phenomena through investigation that I began without knowledge that these ideas had been previously discovered. One day I asked a female patient under hypnosis why the back pain which had been relieved previously by hypnotic suggestion had returned (the tendency of symptoms so removed to return is well known). Actually, it was surprising to me when I received a labored verbal reply of "I just want to live that's all, I just want to live." Further inquiry revealed an individual personality that was being suppressed by other forces that the conscious mind knew nothing about. It was struggling for expression and the back pain was the resulting symptom. This personality was able to emerge with the aid of hypnosis and was able to function as a total or complete individual. The *conscious* mind was totally unaware of what had happened during the time that elapsed while this personality was *out*. This patient has at least seven distinct segments of the total self. I now have detailed studies of 24 cases in which communication by verbal, written, or muscular signals have been established with more than two other areas of awareness beside the conscious mind. It is my opinion that this division is a normal state of psychic structure. Mental illness arises out of dissociation of these separate units because of traumatic experiences (and defenses against the resulting emotions) or because of disagreement in philosophy, attitudes toward self and others, and systems of values.

The *conscious* mind, the ego, functions as the representative of the whole self to the external world and tends to pay little attention to the inner world unless it is forced to do so by either internal or external pressures. It may be strongly in control of what is expressed to the outside world or may be merely a weak puppet of the inner mind. There may be several co-conscious units.

There is in the mind a functional entity such as that described by Jung as the center of the psyche which he calls "the self." This entity functions as an autonomous individual who is more cognizant of what is occurring within the total psyche. In some individuals, it has benevolent intentions and attempts to alleviate distress and discord and to promote peace and integration. In others it may be negativistic and be like possession by a devil. Where this entity had constructive purposes, it has told me in several different cases that it was at its urging that the patient had come for psychotherapy. This entity is capable of gathering and relaying information from the unconscious and of developing attitudes toward itself and each portion of the mind including the ego which it may refer to in the third person (he or she), by name (Joe, Jane) or as "the one outside." In some patients there may be two of these units.

Another entity sometimes found seems to arise out of a *situation* which has forced upon the individual in infancy or early childhood, a realization of its separateness from mother, its lack of control of mother and its own helplessness. When a threat to security is also felt this produces a situation of panic and forms the core of a basic anxiety. It corresponds to the masochistically

oriented infantile self described by Bergler, although I am not in total agreement about the masochistic characteristics of this entity. It has a rather desperate orientation toward someone outside the self, feeling the necessity of having someone in order to feel secure. It may at the same time have considerable distrust of the one upon whom it depends having once felt secure with mother and then having suffered what was taken to be a disappointing betrayal. It may be the source of a phobia, or anxiety, usually having the purpose to avoid a repetition of the original distressful experience. There may be more than one of these arising out of the same or different traumatic experiences.

The "conscience" is found to be the formation of a defense against the separation anxiety. The defense is that of enforcing self-discipline upon oneself to avoid conflict with mother and a threat of separation from her. Its chief function is conformity to the environment in order to avoid threat from the environment and its chief disciplinary weapon is guilt or shame but it may also use fear. The "conscience" denies spontaneity and demands behavior according to the presumed expectation of the environment. The conscience functions, then, to promote security at the expense of spontaneity. It may enforce unreasonable limits. It is not the only source of "superego" manifestations.

The Id-like component is a spontaneous, fun-loving and sometimes teasing entity which tends to be much less fearful than the conscience and tends to oppose it. The Id functions to promote pleasure and may place this function above security but may also accept *reasonable* limits. There may be more than one unit with these characteristics.

The "Conscience" and the "Id" seem to be most closely related to the *conscious* units of the mind. The center of inner awareness or the *self* is in turn related more closely to them than with the conscious mind and seems to stand between them and the more primitive or infantile self which it sometimes refers to as *the baby* or *the little girl (or boy)*. The infantile self is usually unaware of the adult state of affairs and may sometimes respond with peace of mind and a relief of anxiety or fear upon being helped to establish communication with the more mature inner Self. Sometimes the infantile self emerges in the regressed state of mind it represents and may be encouraged to see that the physical equipment of an adult is now available to take care of oneself and that there is no grave danger present in the surroundings. It may also panic at not finding mother or familiar surroundings.

For example: one such entity was amazed to find that she was not still on an operating table and being given an anesthetic for a broken arm which occurred when she was a child. Another such entity expected to see her father bending over her about to slap her again. Apparently fear causes a dissociation from reality *and* the fear to *return* to reality. This leaves the fearful entity in a suspended state of expecting whatever activity it interrupted by losing awareness to be resumed. This causes a perpetuation of the fear and does not permit a reevaluation of the situation as it really is at the present time. Until this part of the mind again either believes or finds out the situation is changed to one that is safe it remains fearful and causes anxiety or fear in the total individual. It may then be suppressed by the remainder of the self because of its accompanying unpleasant emotions.

REFERENCES

1. Freud, S.: "Collected Papers," Vol. 1, *Hogarth Press*, 1956, p. 34.
2. Breuer, J., and Freud, S.: "Studies in Hysteria." *Basic Books*, 1957, p. 12. See also the case of "Fraulein Anna O," pp. 21-47.
3. Jung, C. G.: "Two Essays on Analytical Psychology." *Meridian Books*, New York, 1956, p. 212.
4. McDougall, W.: An Outline of Abnormal Psychology, pp. 541-543, as referred to by Thigpen and Cleckley in "The Three Faces of Eve," *McGraw-Hill Co., Inc.*, New York, 1957.
5. Bergler, E.: The Basic Neurosis. *Grune and Stratton, Inc.*, New York, 1949, pp. 37-136.
6. James, W.: The Principles of Psychology (as published in "Great Books of the Western World," Vol. 53, by *Encyclopedia Britannica, Inc.*, Chicago, 1952) pp. 132-139, pp. 248-252.
7. Ibid.: p. 134.

The Therapeutic Community and its Benefits

ALEXANDER GRALNICK, M.D.

The nature of the hospital treatment of mental illness depends upon our conception of the disease, as well as upon our belief about its alterability. Naturally, it depends upon our experience with it, too. The traditional custodial program was the end-result of a general pessimism and belief that mental illness was either inherited and constitutional or otherwise beyond understanding and successful treatment. The new wave of enthusiasm that has accompanied the use of the newer drugs has undoubtedly contributed to a feeling of optimism and affected a change in the general management of the hospitalized patient. The radical changes that have been instituted may be summed up in the term "Therapeutic Community," although this is by no means an entirely new concept.

Traditionally, treatment has meant an "acting upon" the patient through one procedure or another, whether physiological or psychological. Now we are given to thinking of the hospital as a total unit or community, which by its very organization may affect the patient beneficially. This suggests that no treatment procedure is important to the exclusion of the social relationships within the hospital. The social structure of the institution, then, is significant to the results we achieve, in addition to medicines and the like.

A therapeutic community is a particular type of social structure many of whose parts must yet be identified. Among the more intangible aspects is the general attitude of the medical staff toward its patients. A staff may consider that it is treating a disease within a person, or otherwise, a person who has an illness. In the former case the patient as an individual is not necessarily given much thought, whereas in the latter event primary consideration is given to the individuality of the patient and his emotional problems in a living arrangement with other human beings.

The "therapeutic community" suggests further that the staff will consider the patient to have areas of good contact with reality, and therefore constructive abilities with which we can work socially. It will feel that the patient can make a positive contribution to the social organization of the hospital, and tolerate responsibilities given him. Accordingly, the attempt will be made to have the patient contribute to the social fabric of the institution. It is meant by this that the patient will be engaged in activities which are useful to the group with which he is living.

The therapeutic community utilizes the "team-approach" to treatment. This recognizes that all personnel are important to the end-result. The medical staff, therefore, must be ready to share its treatment role with others as well as the credit that goes with accomplishment. There is difference of opinion about the role the therapist should play in relationship to his patient. Should he be purely the therapist, or should he have a role in the administrative care of his patient too? The concept of the therapeutic community would seem to require the treating physician to play the combined role of therapist and administrator in relationship to his patient. When this is done he maintains a closer contact with the patient in a more meaningful and realistic manner. This permits greater understanding of the way in which the patient relates to people.

The therapeutic community is of course worthy of its name only if it is an active treatment center whose personnel maintain an attitude of therapeutic optimism. It requires close proximity between staff and patients, and good lines of communication between them both as individuals and groups. A dynamic orientation and the opportunity for frequent psychotherapeutic sessions are essential.

There are a number of ideas implicit in

From High Point Hospital, Port Chester, N. Y.
Read at a 1960 world tour meeting of the Eastern Psychiatric Research Ass'n at New Delhi, India.

the concept of the therapeutic community. Firstly, that the nature of interpersonal activity within an institution is a subject of study and knowledge. Secondly, that they may be controlled, affected, and organized in such a manner as to have a therapeutic effect. Thirdly, that environmental factors contribute to the causation of mental illness and, in a corollary fashion, to its correction. Fourthly, that insight, which is healing in its effect, may be achieved by the patient out of his relationships with individual patients, not only from his relationship with a therapist. Fifthly, that the very elements of the one-to-one doctor-patient relationship which are believed to be therapeutic may be reproduced in the hospital setting with the same effect. Sixthly, the therapeutic community suggests that the patient may become aware of and work through his reality problems in the therapeutic relationship. Additionally, it is implied that some benefit accrues to the patient out of his activity with groups of patients.

Now that we emphasize the patient as a human being we think similarly of those who treat him. Accordingly, the doctor's qualifications as a person rank in importance with his knowledge of dynamics, mechanics and medications. Thus, the totality of those people who have to do with the treatment of the in-patient are, together with the patients they treat, a community of beings engaged in a common purpose, namely, the alleviation of the patient's ills. All together make up the therapeutic community when the proper conditions prevail.

Other elements of the therapeutic community may be mentioned in passing. Preferably, the institution should be relatively small and contain a rather homogeneous group of patients. The situation should permit close and frequent contact between the patients and therapeutic team, as well as good communication between all of them. Consequently, policies and procedures should evolve from a multitude of cross references, and should change with the changing needs of the patients. The bulk of patients should remain for relatively long periods so that continuity of program may be maintained.

The purpose of the therapeutic community is to mold a pathologic group of patients into a rational one through the establishment of ways of living consistent with their current abilities and disabilities. This, of course, has to be achieved at any and all times throughout the vicissitudes of the patient's illness. Accordingly, its construction must have a flexibility approaching fluidity, and yet a solidity suggesting consistent direction and purpose.

We must distinguish the mechanics of the therapeutic community from its underlying dynamics and attitudinal approach to the patient. The mechanics are relatively unimportant compared to the other factors. Of real significance are the community's mores, traditions and system of values. Much hinges on the manner and wisdom with which it treats the constant clash between the interests of the patient and those of the group with which he is interacting. In many respects the problems of the therapeutic community are a reflection of the individual patient's clash with his therapist, and that of the group of patients with the staff as a group. Each is trying to influence the other, and have him see eye-to-eye with himself. The process of accomplishing this is the work of the therapy, and problems are present until this is achieved. This is "the working through" of therapy. The team of therapists, in its wisdom, though a participant in the process, must maintain an objectivity the patients do not possess. It is this edge in objectivity and alertness to reality which molds the pathologic group into a reasonable one. It is the difference between success and failure of the therapeutic community in seeking its goal. When the therapeutic team is relatively successful a state of harmony and equilibrium exists throughout the social structure. When anything new—such as a set of strange patients, suddenly disturbed patients, or disgruntled staff—is introduced a disequilibrium is created, and therapy starts anew. Thus, the process is never-ending.

As a small unit of patients the therapeutic community may be compared to a family group. The individual may establish close

ties to the group and feel responsibilities to it, or go his separate way in isolation. In the former case he gains a sense of satisfaction as an integral member of a group. In the latter event he suffers the unhappiness associated with loneliness. In one case he feels a useful member of society; in the other he suffers the knowledge of self-centeredness.

The therapeutic community requires a final figure of authority. This may be an individual, but preferably should be the therapeutic staff. Although the patients have a participating role, they need to understand that the medical staff is the final arbiter when mutual agreement is not possible. The doctors must be realistic, not arbitrary, and ready sometimes to risk accepting certain plans suggested by patients even though they offer little chance of success. In essence, however, the medical staff should be intimately involved in structuring the patients' program of activities. In this regard, therefore, it is best not to interpose occupational and recreational therapists between the patients and therapists. The patients can best play-out and work through their problems when in as direct contact with the therapists as possible in the solution of their mutual difficulties in a social organization.

In the above elaboration of the therapeutic community its benefits to patients are implicit. It would seem wise, however, to highlight some of these at this point. The therapeutic community gives the patient a feeling of significance in the social scheme of things, and thus combats his feelings of low self-esteem and need to isolate himself. At the same time it furnishes him an opportunity to gain ready awareness into the nature of his emotional problems in relating to people. It permits the patient to explore his set of values and refashion them into a consistent system conducive to rational relationships with people.

The close contact of patient and doctor permits the latter to more completely evaluate the patient more quickly. Substantial and lasting results may be expected. In like vein the therapeutic community permits a sorely needed type of clinical investigation and research into the nature of mental illness and its alleviation. We can see in vivo how the patient repeats the same sick behavior he did at home, except that now the parent, so conveniently blamed previously, is not present. Instead there are surrogate figures who are less emotionally involved with him, and therefore more capable of both helping and studying him.

The psychotic patient, particularly the schizophrenic, has marked problems with authority which prevent him from relating well to groups. Since the therapeutic community explores and treats the patient's difficulties with groups it helps expose his trouble with authority figures who protect the group against him. It aids him to appreciate the needs of the group above his own without necessarily losing self-esteem. At the same time it is designed to show him that self-absorption is self-injurious, and that consideration of others in team-work is self-healing. In essence, the therapeutic community helps the patient resolve the age-old problem of "individual freedom" versus "responsibility to the group." If the authority-figures are flexible the patients will learn that they are not inevitably unreasonable and awesome. This is especially valuable to patients.

In essence the therapeutic community is more than just a "good" hospital in which effective treatment modalities are used. It is a specific social organization constructed to resemble the outside world in many essential respects. It permits the patient to experience and know the emotional problems he has in relating to people no matter where they may be. Further, however, it enables him to work through these problems under conditions in which social relationships are controlled by a knowledgeable psychiatric staff. The aim is to help him grow and mature beyond any level he had previously achieved. In this manner the patient may not only overcome his symptoms but become strong enough to prevent their recurrence.

Effect of Ditran on Chronic, Regressed Mental Patients

WILLIAM N. KARN, JR., M.D., BEVERLEY T. MEAD, M.D.,
and J. J. FISHMAN, M.D.†

Introduction

In a preliminary report[1] on the effects of a new synthetic hallucinogenic agent Ditran (N-ethyl-2-pyrrolidylmethyl-phenylcyclopentyl glycolate hydrochloride and N-ethyl-3-peperidyl-phenylcyclopentyl glycolate hydrochloride), some favorable response was found in alleviating severe depression in a limited number of patients. Because of its rapid action, the drug has been suggested for use in place of EST when waiting for the effects of oral antidepressants is not feasible. Inevitably, the announcement of any new psychotropic drug brings to mind a number of patients whose chronicity challenges investigators in the hope of finding something which will be of more than token benefit. Since it has been observed that many chronic patients is state hospitals appear depressed, or at least apathetic, regardless of their diagnosis, it was decided to use Ditran experimentally at the Wyoming State Hospital.

Procedure

Patient Selection

In line with other changes for more efficient treatment, patients had recently been reassigned ward placement according to the kind of supervision or treatment needed. On the women's service two wards house chronic, ambulatory patients, including those under "maximum security" conditions because of occasional assaultiveness or tendency toward suicide attempts. On each of these wards, however, are several patients for whom space in more appropriate wards was not available, and while they represent chronicity, they do not necessarily need closed-ward care.

Initially all patients on each of the two wards were to be included in the study, but of the original 72 patients, only 63 completed the experiment. Of the nine who did not complete it, one patient was discharged, several were transferred to the infirmary service for ailments ranging from a hemorrhaging ulcer to a broken hip, or to the geriatric service when room was available, and one was febrile on the day the drug was to be administered and thus was eliminated.

Table I indicates the 63 patients by diagnosis. The length of stay of the current hospitalization is based on the date of the beginning of the experiment.

Probably the most significant aspect of the patients involved in the study is that while they range from 24 to 85 years of age, and their length of stay for the present admission of 49.3 years, their average age is 59.6 and the average length of stay, 16.5 years. These patients represent many of the "forgotten" ones. It should also be noted that 39 of the 63 patients, or 62 per cent, are diagnosed as schizophrenic.

The Drug

Ditran is a soluble compound which is administered intramuscularly, one dose 2 cc. of 7½ mg. per cc. usually producing results, at least in severely depressed patients. The typical cycle of the drug activity in a patient is shown as follows:[2]

"10 minutes—Autonomic reaction—one or more of the following: dryness of mouth, tachycardia, flushed face, drowsiness, and heavy limbs.

"20 minutes—Central effects—one or more of the following: confusion, difficulty in speech and concentration, disorientation, hallucinations (auditory, olfactory, tactile, visual).

"4-8 hours—Symptomatology heightened—loss of contact, reticence, weakness, recumbency, hallucinations. Hyperreflexia, ataxia and vertigo may also occur.

"8-15 hours—Symptoms reduced and recovery sets in slowly. Marked restlessness.

"24-36 hours—Recovery complete—mood elevated and activity increased. Euphoria common. Rehabilitation and return to work are often possible within a few days."

The drug Ditran is produced and was furnished to the hospital for research purposes by Lakeside Laboratories, Inc., Milwaukee 1, Wisconsin.

The manufacturer also reports no systemic toxic effect from use of Ditran. "Within two hours of administration, over 90 per cent of the administered material is excreted largely unchanged." This may explain the absence of toxic effects."[3] Because of its anticholinergic properties, Ditran is contraindicated in the presence of glaucoma and prostatic hypertrophy.

Method of Evaluation

As in use of other hallucinogenic agents, no method utilizing a control group could be established. The only possible control was the individual patient, with preevaluation and postevaluation indicating changes.

Since the experiment was the first of its kind to be made at Wyoming State Hospital, and because personnel changes were still in progress, it was felt that it would take an undue period of time to orient personnel to the use of patient rating scales or other methods of evaluation. It was agreed, therefore, that the evaluation procedure of choice was as follows: Efforts were made to keep the patient in a *status quo* relationship with the ward for several weeks prior to the administration of Ditran. During this period, a minimum of six weeks, no changes were made in medications prescribed. However, in a few cases it was necessary to change the dosage of medication being received, privileges permitted, and transfers (except as noted above). For the purpose of evaluating the patient before and after the administration of the drug, two sources of information were utilized. First, the usual reports from ward personnel; second, a psychiatric evaluation interview. The interviews were stereotyped and consisted of a number of questions regarding the patient and her activities in the hospital. Relevance of replies, mood, and affect were all noted as well as any spontaneous remarks and physical activity of the patient, and the examiner's comments were included. The interviews were conducted in one of the ward dormitories by the psychiatrist-interviewer in the presence of one member (J.J.F.) of the research team and one of the nursing supervisors. The interview technique may be open to question as to the interviewer's possible lack of objectivity. It was believed, however, that a repetition of the interview some time after the initial one, and following administration of the drug, would compensate for such possible lack of objectivity and for extraneous influences such as an increased interest in the individual on the part of the personnel following initiation of the experiment.

After the period of ward stabilization had begun and between six and eight weeks prior to the actual administration of the drug, the interview was held with each patient. A week after the administration of the drug (on different dates for each ward), the interview was repeated under the same conditions as before. After administration of the drug one week was allowed before giving a second interview. It was felt that this would allow adequate time to permit complete recovery from any possible lingering aftereffects of the Ditran, yet still close enough to the time of drug administration to indicate that changes detected in mental status could be attributed to medication. It is to be noted that the same psychiatrist conducted all interviews and during the entire period had no other contacts with the patients. The second interviews were conducted without reference to the first interview reports, and the ratings of "improved," "unchanged," or "worsened" were based on an objective comparison of the two reports. The ratings were checked against reports from ward personnel and no discrepancies were found.

Patient Response to Ditran

The Ditran was administered intramuscularly (left deltoid) by the senior investigator after he screened each patient for possible glaucoma. (Since two conditions contraindicate the use of the drug, it was deemed advisable to use women only in the study.) No patients were found to have glaucoma.

On the first ward the Ditran was given as patients stood in line. Within 15 minutes the first injected patients began to slump to the floor complaining of dizziness or sleepiness (not faintness); the rest were told to go immediately to their beds and lie down, but

only a few were able to do so without assistance. Blood pressures remained essentially unchanged, pupils were extremely dilated, and twitching of the limbs or entire body was common. Xerostomia, as expected, was prevalent. Reflexive sneezing and coughing were also common for the first hour or so. Most of the patients slept for the greater part of the day following the early administration of the drug, although they could be awakened and appeared to understand there was difficulty in responding.

On the second ward the Ditran was injected as the patients lay on their beds. Unexpectedly, only four seemed to sleep afterward, but all twitched and were restless.

Of the total patients treated, only a little more than half appeared to have hallucinations, one of whom was aware of them as they occurred and discussed them. Tactile and visual hallucinations seemed most severe and the tactile hallucinations lasted longer than the others. No patient complained of or appeared to have olfactory hallucinations.

The drug seemed to cause a spatial distortion which interfered with the patient's judgment as to where to sit. Several missed the chair or toilet seat or sat on the lap of another patient already seated on a couch. This symptom, which began with some patients as early as an hour after the injection, lasted well into the second day with many.

Only a few patients retained interest in food during the first day, and meals sent to the wards were largely uneaten, although some patients did eat with assistance. Thirst was excessive and much fluid was consumed. Four patients were nauseated and vomited, one so severely and frequently as to make administration of an anti-emetic necessary about 12 hours after the injection. Vertigo was extreme in almost all cases and sheet restraint was used to keep patients from falling (after one did) as they attempted to sit up or get out of bed. One patient became extremely hyperactive and somewhat assaultive, apparently unaffected by vertigo, and while confined to her room, continually made and remade her bed for almost 12 hours before sleeping. Two patients developed an elevated temperature (100.2° and 101°) which returned to normal by evening.

Despite the previously-noted comment that "Within two hours of administration, over 90 per cent of the administered material is excreted largely unchanged," it was somewhat surprising to the investigators to discover how prolonged a diuretic effect Ditran has. In the group of patients who slept a great deal, almost all were incontinent during sleep. Other patients were assisted to the bathroom regularly, but despite this and the use of disposable pads borrowed from another ward, the sheet supply was exhausted before the end of the evening shift.

On the day after the drug was administered, while some patients remained apathetic and lethargic with remnants of vertigo, and still continued to have hallucinations, most of them appeared to respond more readily than usual to questioning and appeared more animated. Most remembered the injection of the day before but were unable to recall their activities of that day. Symptoms were sufficiently modified by noon for most patients to go to the dining room, although spatial disorientation continued.

Results

Results of Ditran administration are shown in Table I according to diagnosis. Table II gives more detail on the improved, worsened, and unchanged patients.

In a report from Lakeside Laboratories[4] replying to a query about results of using Ditran with schizophrenics, 27 of 73 (37%), responded favorably. In the present study, 12 of the 39 schizophrenics, about 31 per cent, showed some improvement. Surprisingly, the depressed manic-depressive was unchanged and the psychoneurotic depressive actually worsened, which was contrary to expectations since Ditran is a specific antidepressant. (It must be stated, however, that the latter patient has a record of five previous hospitalizations for depression.)

Also unexpected is the finding that the average age of both the improved and worsened patients is somewhat older than that of the group. Even more surprising is the

fact that the average length of stay of the current hospitalization is almost twice as long (22.7 years) for the improved patients than for the worsened patients (11.6 years), although again it should be noted that of the four worsened women, it was the fourth admission for one and the sixth for another.

It is significant that in this mixed group of chronic patients 12 of the 14 women who improved were schizophrenics, and the two additional patients, although diagnosed otherwise, are considered to have some schizophrenic features.

An attempt was made to ascertain whether use of any of the psychotropic medications affected the action of the Ditran, but results were inconclusive.

As may be seen from Table III, there is some relationship between those patients who experienced hallucinations as a result of the Ditran, and improvement; namely, 10 of the 14 (71%) who showed improvement had

TABLE I

Patients by Diagnosis

					Results by Diagnosis				Unchanged Patients			
Diagnosis	Number of Patients	Average Age	Aver. Length of Stay; Current Admission (Years)	Aver. Number of Admissions	Number of Patients	Number Improved	Number Worsened	Number Unchanged	Number of Patients	Average Age	Aver. Length of Stay; Current Admission (Years)	Percent of Total
CHRONIC BRAIN SYNDROME												
Asso. w/cerebral arteriosclerosis, w/psychotic reaction	5	74.2	2.2	2	5	0	1	4	4	74.3	2.2	80
Asso. w/CNS syphilis, meningoencephalitic, w/psychotic reaction	3	57.7	13.8	1.3	3	0	0	3	3	57.7	13.8	100
Asso. w/CNS syphilis, meningosyphilitic, w/psychotic reaction	1	49	24.6	1	1	1	0	0	2	74.5	6.1	100
Asso. w/senile brain disease, w/psychotic reaction	2	74.5	6.1	1	2	0	0	2	1	72	.9	100
Asso. w/presenile brain disease, Alzheimer's Disease, w/psychotic reaction	1	72	.9	1	1	0	0	1	1	65	31.7	100
Asso. w/convulsive disorder, w/psychotic reaction	1	65	31.7	1	1	0	0	1				
TOTAL CHRONIC BRAIN SYNDROME	13	67.6	9.4	1.5	13	1	1	11	11	68.7	8.7	85
AFFECTIVE REACTION, MANIC-DEPRESSIVE REACTION												
Mixed type	1	69	30.6	1	1	1	0	0				
Depressive type	1	72	19.8	2	1	0	0	1	1	72	19.8	100
Manic type	1	45	21.2	1	1	0	0	1	1	45	21.2	100
TOTAL MANIC-DEPRESSIVE	3	62	23.9	1.3	3	1	0	2	2	58.5	20.5	67
INVOLUTIONAL PSYCHOTIC REACTION	3	66	13.2	1.3	3	0	1	2				
PSYCHONEUROTIC REACTION												
Depressive reaction	1	72	1.8	6	1	0	1	0	2	62	8.5	67
Anxiety reaction	1	48	.8	4	1	0	0	1	1	48	.8	100
SCHIZOPHRENIC REACTION												
Simple type	1	76	33.6	2	1	0	0	1	1	75	33.6	100
Paranoid type	19	59.4	20.3	1.5	19	3	1	15	15	59.5	20.9	79
Catatonic type	4	50.3	22.7	1.5	4	2	0	2	2	51	25.3	50
Chronic, undifferentiated type	10	59.7	17.6	1.8	10	7	0	3	3	52.7	1.7	30
Hebephrenic type	5	57.6	24.9	1	5	0	0	5	5	57.6	24.9	100
TOTAL SCHIZOPHRENIC REACTION	39	58.7	20.8	1.5	39	12	1	26	26	58.3	20.3	67
MENTAL DEFICIENCY												
Idiopathic, mild	1	24	.2	4	1	0	0	1	1	24	.2	100
Idiopathic, severe, w/psychotic reaction	1	63	8.2	4	1	0	0	1	1	63	8.2	100
Mild, w/psychotic disorder	1	50	10.6	1	1	0	0	1	1	50	10.6	100
TOTAL MENTAL DEFICIENCY	3	45.7	6.3	3	3	0	0	3	3	45.7	6.3	100
TOTAL IN STUDY	63	59.7	16.5	1.6	63	14	4	45	45	60	15.6	71

TABLE II

Diagnosis	Improved Patients — Number of Patients	Average Age	Aver. Length of Stay: Current Admission (Years)	Percent of Total	Worsened Patients — Number of Patients	Average Age	Aver. Length of Stay: Current Admission (Years)	Percent of Total
CHRONIC BRAIN SYNDROME								
Asso. w/CNS syphilis, meningosyphilitic, w/ psychotic reaction	1	49	24.6	100	1	74	2	20
TOTAL CHRONIC BRAIN SYNDROME	13			8	13			8
MANIC-DEPRESSIVE REACTION								
Mixed Type	1	69	30.6	100				
PSYCHONEUROTIC-DEPRESSIVE REACTION					1	72	1.8	100
INVOLUTIONAL PSYCHOTIC REACTION					1	74	22.7	33
TOTAL MANIC-DEPRESSIVE	3			33				
SCHIZOPHRENIC REACTION								
Paranoid Type	3	63	17	16	1	47	19.7	5
Catatonic Type	2	49.5	20	50				
Chronic, Undifferentiated Type	7	62.7	24.4	70				
TOTAL SCHIZOPHRENIC REACTION IMPROVED	12	60.6	21.9	31				
TOTAL	14	60.4	22.7	22	4	66.8	11.6	6

hallucinations. On the other hand, 30 of the 45 patients (66%) who showed no change also experienced hallucinations. None of the four worsened patients had hallucinations.

Conclusions

With the use of two wards of chronic female patients of varying diagnoses, ages, and length of chronicity, it was possible to obtain some improvement in about 30 per cent of the schizophrenic patients, largely the "chronic, undifferentiated type," by the administration of one dose of Ditran. Inevitably this conclusion raises the question of its use with acute schizophrenics, and also its use with a selected group of chronic schizophrenics under controlled environmental conditions but with repeated dosages of Ditran over varying periods of time.

TABLE III

Diagnosis, Hallucinations and Improvement

Diagnosis	Total with Diagnosis	Total Improved	Total Imp. with Hallucinations	% Improved with Hallucinations
Chronic Brain Syndrome	13	1	0	0
Manic Depressive Reaction				
Mixed Type	1	1	1	100
Schizophrenic Reaction				
Paranoid Type	19	3	3	100
Catatonic Type	4	2	1	50
Chronic — Undifferentiated Type	10	7	5	71
Total Schizophrenic Reactions, Improved		12	9	75
Total Improved		14	10	71

W. N. Karn, Jr., Superintendent, Wyoming State Hospital.

B. T. Mead, University of Utah, Department of Psychiatry, Psychiatric Consultant to Wyoming State Hospital.

J. J. Fishman, University of Utah, Department of Psychiatry, Research Consultant to Wyoming State Hospital.

REFERENCES

1. Abood, L. G., Ostfeld, A. M., and Biel, J. H.: *Arch. Int. Pharmacodyn.*, 120:186, 1959.
2. Investigational Background, Lakeside Laboratories, page 4.
3. *Ibid.*, page 8.

Perception and Psycho-Pharmacodynamics in Schizophrenia

(As Reflected in Patients' Art)

G. M. DAVIDSON, M.D., and ESTELLE ADES

If the doors of perception were cleansed everything would appear to man as it is, infinite.

WILLIAM BLAKE.

Orientation

In a former study of patients' art (paintings and drawings) at the Manhattan State Hospital a method of approach toward interpretation of art work was developed[7] which suggested the possibility of evaluation of the relationship of perception to psycho-and-pharmacodynamics in schizophrenia. An investigation into such a relationship is being reported here. The drugs used in this project were: Thorazine and Dartal. The art-work of a large number of patients was studied. The material reflected cases which responded to one or the other drug, and cases which either did not respond at all or did not appreciably respond. Clinical examples will be given, and comments on the relationship of perception to psycho-and-pharmacodynamics and their significance will be offered. However, in order to proceed with the evaluation of the material it is necessary to orient oneself in certain aspects of *perception.* Before we do that we would like to submit data on interpretation of patients' art as established in the earlier study, which in turn will be helpful in drawing conclusions on the subject matter under investigation.

To begin with, the design of a painting is considered a *Gestalt.* The configuration incorporates *space, color* and *form.* The triad in toto or in its component parts, in its abstract or concrete expression serves as a basis for interpretation. In a clinical sense, the triad (or parts of it) is a constituent of the total personality. To find the relationship of the design (the triad) as a part to the whole, the totality, the patient is requested to give his associations to the triad. The associations together with the patient's history ultimately bring about the interpretation.

To rely further on the principle of the total personality an attitude is attempted that will interpret the design in psychophysiological terms. Toward this end the suggestion of Bernard Berenson regarding *tactile, visceral* and *respiratory* values of a design is used. *Tactile* values are expressed in *form.* The latter carries also *content* and *movement.* On the whole, form will promote our "corporeal touch" with the *outer world,* thus offering *tactile* value. *Color* accelerates the appreciation of form; may be also used for pure sensuous appeal. Color refers to feelings of comfort or discomfort, and as such represents *visceral* value. *Space* is judged by the execution of the design, as reflected in "organization of space." It implies freedom or lack of it which may promote feelings of tension and anxiety. This part of the triad may be equated with *respiratory* value.

The next step in the approach to interpretation of a design is to combine expression with the person's basic *affective* needs (psychic *needs* of Linton.[13] It is postulated that *tactile* value, as expressed in *form, content* and *movement,* is a reflection of the *affective need* of *communication,* and indicates the state of interpersonal relationship of the patient. *Visceral* value, as expressed in the use of *color,* reflects the *affective need* of *recognition* and *emotional response,* and covers the emotional sensitivity of the patient to challenges of life (note that Van Gogh in his letters to his brother wrote that he tried to express the *passions* of humanity in *red* and *green,* etc.). *Respiratory* value, as expressed in "organization of space," reflects the *affective need* of *new experiences,* thus the degree of conflict over the need of fredom, achievement activity, etc. The de-

gree of expression of the *tactile, visceral,* and *respiratory* values, as may be judged from the presence or absence of movement, the amount of pigment used, or other factors, is indicative of the acuteness of the respective *affective need,* struggle for progress, etc. *Organization* of *space* together with the nature of *form* is a reflection of the status of conceptual thought of the individual.

W. Russell Brain[3] emphasized that the perceptual world is not identical with the physical world but is a representation and construction of the world by the individual brain. Within the perceptual world there is a distinction between the body and percepts outside it, but this does not correspond to the distinction between the physical body and events outside in physical space. Bodily sense-data contribute to the sensory characteristics of the external world of perception, thus making the latter doubly subjective because it becomes a construct of the individual's brain and incorporates sensory experiences from the subject's body. One may say then that the outer world is the inner world of memory that creative art consists of representations and symbols combined in new relations without need of external stimulation. Hadamard[11] showed that the creative men whom he investigated, "think" in visual forms.

Several aspects of perception, such as the philosophical, anthropological, cultural, ontological, physiological, chemical, etc. may be recognized. In any instance one must keep in mind that there is no effect without an intervening medium, as well as the principles suggested by F. A. Beach,[1] that in every behavioral set there exists not one but many correlates, and that no one process or condition has only one behavioral effect.

Henri Bergson[2] called attention to perception as a form of action rather than cognition. He reasoned that perception alone cannot give us the exact relation of things; it must be helped by thought (memory). On the other hand, memory allows only the useful for the moment to come through. Perception is concerned not with knowledge of the world but dealing with it. Toward this end we like to say that there is no thought or memory without an affective component. We regard *affectivity* as the *final common path* of the *total personality.*[5] Thus, affectivity may be regarded, in turn, as the bodily power to absorb and reflect and to "filter" the useful (affectivity has its physiological, chemical, neurological, etc., aspects). It is of interest that the attitude of Bergson was voiced in other quarters. For instance, Hughlings Jackson[13] regarded perception as a sensory-motor phenomenon (when we look at an object our pupils react). Woodworth[19] on psychological grounds expresses the same when saying that when we see—we look. Woodworth speaks of *expectancy* in perception, the greater the expectancy the greater the arousal, which refers to affectivity as postulated.

Gastaut *et al.*,[10] from a neurophysiological point of view apparently thinking on foregoing lines, suggested that the fundamental action of LSD consists in decreasing the "filtering" activity of the brain, and thus increasing the effect of stimuli of either external or internal origin.

Since it is known that LSD or Mescaline heightens the perception of color, which in turn has emotional value, and since changes in affectivity belong to the primary signs of schizophrenia,[6] special emphasis is placed on the ability to use color. One of the goals of perception is definitiveness—to give form. Color accelerates the perception of form. Color which is also involved in emotional expression may be a potential stress in adaption, thus influencing the constancy of the internal *milieu.* Doust[8] studied metabolic concomitants of the perception of color. He found that *white* does not significantly disturb the level of alveolar oxygen tension, but *yellow* and *black* do. Carbon dioxide metabolism, and skin temperatures were affected by presentation of color stimuli.

An outstanding aspect of perception is the unconscious process upon which James G. Miller[16] made the following cogent observation. He called attention to the fact that in our culture there is a great demand for rationality but the latter is only an icing over the phylo-and-ontogenetically older factors in perception behind which the primary prin-

ciple is not deductive rationality but the inductive process of irrational belief. As an example, the anthropological studies of Malinowski[15] reveal that the Trobriand Islanders steadfastly refuse to see resemblance among maternal kinsmen but note and perhaps exaggerate resemblance in the paternal line.

Since we deal with schizophrenia there arises the question of *regression* and its relation to perception. First, we like to say that *regression* ought to be understood here only in terms that in certain schizophrenias there is a decrease from "higher" to "lower" form of activity. The schizophrenic who withdraws from reality (as a defense) cannot adapt himself to external stimuli by way of reflection and abstract thinking. But we have found that patients while unable to communicate verbally may be able to form a plan of action in non-verbal communication.

Perhaps the observation of B. L. Whorf[18] regarding language is pertinent. Whorf postulated that language does not give names to concepts as much as it articulates the world of our experiences. Since the world of the schizophrenic is splintered, even crushed, there may be an apparent impairment of conceptual thinking. True impairment of conceptual thinking calls for evaluation of cortical function, as our cases have suggested. Along with the observation of Whorf the attitude of Sir Herbert Read[17] toward the problem is noteworthy. Read observes that the *icon* always precedes the *idea*. According to him ideas are elaborations of the intuitions first given visual form by the artist. Biologically speaking, the preservation of the ability of the individual to react to stimulations from his inner and outer *milieu* to form images (Gestalten) is essential for his survival, a dynamic property akin to *homeostasis*. The chronic schizophrenic also maintains a relative constancy of his external environment for the same obvious biological reason essential for his survival.[8]

I set forth some pertinent clinical material.

Case 1: Male, negro, 21 years old, single, no occupation, was born out of wedlock, one of a pair of twins. The parents subsequently married but separated when the patient was 15. Not much of his early development is known except that he had a strong attachment to his mother, a competitive attitude toward a sister, and mixed feelings of admiration and apprehension toward his father. His early memories refer to about the age of two recalling being in a crib sucking his hand and waiting for "somebody to return." Again at the age of three he recalled being lost and looking for his mother; since he was myopic he looked for a pink dress. At the age of five he recalled again being lost and waiting for "somebody to find him."

His school record was good until the fourth year of high school when he lost interest in his work. He had been interested in drawing since an early age and according to his mother drew "peculiar pictures." Little is known regarding psychosexual development outside of his mentioned position in the "family romance"; he was distant in relation to girls, patient expected them to "make a move." This is borne out by his drawings. At one time he was interested in a girl that his father had an affair with and he withdrew.

No history of toxic influences. No significant medical history.

The onset of his present difficulties was insidious, perhaps related to the father leaving the family. He could not adjust at home, or at school; could not hold a job; appeared absent minded and in a fog; rode all night in subway trains, etc. He was hospitalized for the first time in a state hospital at the age of 19, where he was noted as ruminating and detached but adjusting well to routine. Attended group therapy and art classes. Was eventually released but failed to get along outside and was rehospitalized two years later; was discharged and again hospitalized.

In this hospital he appeared effeminate; was in good general physical condition; examination inclusive of laboratory tests was negative except for myopia. Mentally, he was tense and preoccupied. He felt that "society had deteriorated, that there was no room for individuality." He was preoccupied with compensatory ideas of intellectual and spiritual character to counteract his normal urges and appetites. For instance, he rationalized saying that women "keep me off spiritual development." Prior to last hospitalization he experienced transitory auditory hallucinations. He felt insecure, incompetent and ignorant. His sensorium was clear. Psychological tests revealed "identification with and attachment to the mother but at the same time there was striving for masculinity and virility although he believed that this was out of his reach. Homosexuality and castration fears were also indicated."

He applied himself to art preferring to use pencil or ink. He was apprehensive in the use of color, and was unable to apply color in drawing people. He was able to use color in landscape painting but

would not complete the painting. His work reflected clearly his conflicts. One drawing in particular that demonstrates this basic conflict and that would appear to contribute to the concept of the *racial unconscious*, was entitled by the patient "The Dance of the Spider Trap." It depicted an exotic woman with a feather (an elaboration of small circles giving the impression of a peacock feather) chained to a trap. The trap was in two parts, a triangle and a square. There was a hole in the trap. Alongside the trap there was a circle, In the left side corner there was a dried-up tree and a web reaching to another circle in clouds.

Patient's interpretation of the picture was that the woman was a "queen," "may be a bee-queen." He identified his mother with a "queen" who is sensitive and giving. He identified further the circle with the sun. He denied ever having seen a similar drawing; he denied any reference to folklore, etc. He did, however, mention at this time that his father claimed to be Nigerian and that he recalled in his childhood interest in a book on African fairy tales that his father had. He did not recall the contents of the book.

There is a myth of a "spider woman" in the folklore of East Africa and also in that of the Navaho Indians. In the latter it tells of a *spider-woman* who led "twin heroes" (children) to their father—the sun. She gave them a magic feather that guided them safely through a hole, tunnel, rock, etc., to their destination (Capbell[4]).

Comment. This patient was a schizophrenic with considerable obsessive-compulsive traits of character apparently developed as a "reaction formation" against forbidden libidinous strivings toward mother. His repression of affectivity was deep. It was compensated by intellectual striving in an obsessive manner. This was demonstrated in the searching for greater definitiveness and pursuit of symmetry in his drawings. His favorite color was blue (feminine identification). In interpreting his drawings on the outlined principles, one can see that he was vulnerable in *tactile, visceral* and *respiratory* values which reflected insecurity in his *basic affective needs* of *communication, recognition* and *emotional response.* He received Thorazine for several months without affecting his art work which did not change when the drug was discontinued. Dartal had no appreciable effect.

Case 2: Male, white, 22 years of age, single. His father was admitted to a state hospital when patient was one year old. His mother died of CA. of lung two years prior to his admission to this hospital. He was brought up in a feminine environment dominated by his mother, and developed a sado-masochistic relationship with his mother (which was probably mutual). He grew up to be a difficult youngster—aggressive, etc. At the age of 12 he was sent to a home for boys. While there he apparently had a hallucinatory episode in reaction to association with another boy who identified himself as the son of "Frankenstein." His school record was good and he attended college two years. His work record remarks that he had "an aversion to any kind of work." Psychosexual development outside of the given relationship with mother was said by patient to have been "asexual." He masturbated.

There was a medical history of rheumatic fever and chorea in early childhood from which he recovered.

His present difficulty was of insidious onset. Acute manifestation of two years duration following the death of his mother and grandmother. At that time he was informed for the first time that he has a father who is in a state hospital. He visited his father; claimed later that it had no effect on him. He thought his father was a "nice guy." Patient's mental symptoms consisted of somatic delusions, believed that he was going to die, the "knowledge of which kept him alive." He became hallucinatory and thought of himself as God.

In the hospital he was found to be in good physical condition. Effeminate in appearance. Laboratory tests were negative. Mentally he was delusional, misidentified and misinterpreted. Spoke a good deal on religious themes in a bizarre way. Made attempts to mutilate himself. He improved after combined physiological and psychological treatment. At present he is considered eligible for release but is not anxious to leave, and makes himself useful to some extent here.

Comment. This patient was a case of schizophrenia who projected his conflicts into the infinite. The progress of improvement that he has shown in reaction to combined physiological and psychological treatment was well demonstrated to his art work. His search for identity, conflict between masculinity and femininity, the fear of the castrating female have reached a state of remission. He retained some of his glorified self-image, and has shown some subdued homosexual drives. He was unable to use color in drawings for a long time but later did use it to the point of brilliancy. While under treatment with Thorazine he was not able to use color but began to do so when the medication was changed to Dartal. Psychodynamically his drawings expressed the

conflict of masculinity vs. femininity. He had no particular interest in a specific color. He liked them "sharp" which is the way he would like to feel.

In interpreting his art work one can see that under Dartal his poorly expressed *tactile, visceral* and *respiratory* values before this therapy were concomitant with his repressed *basic affective needs* have improved. His ability to use color was concomitant with his improved emotional reactions.

Summary and Conclusions

The relationship of perception to psychopharmacodynamics in schizophrenia as it may be reflected in patients' art work was studied.

An outline of interpretation of the art work was given. The accent of interpretation was placed on the ability of the patient to use color, since the latter is significant for emotional expression. Again changes in affectivity is primary in schizophrenia. The drugs used were Thorazine and Dartal. The drugs demonstrated difference of action with regard to the use of color by the patient. Therefore the report on the findings seems warranted, although the mode of action of the drugs is not yet understood. The complexity of the problem is evident from the study of various aspects of perception which imply multiple causation, as well as multiple effect, as discussed.

Thorazine did not as a rule promote the use of color by a patient, although some patients were able to use color at times in a "pale" way. Again, other patients were able to achieve greater definitiveness in perception. Still others were able to draw only in a "childish, pre-pubertal" way but were able under the influence of the drug to do better. After the drug was discontinued they would revert to the original "pre-pubertal" way of drawing. Thus, under the influence of the treatment the patient would be able to function on a "higher" level and "regress" to a "lower" one when therapy was discontinued. On the whole, Thorazine did not facilitate the release of repressed affectivity, did not stimulate activity in the tested cases.

Dartal showed in contrast the ability to promote the use of color by the patient which was concomitant with activity and better relationships. One concluded that this drug was a potentiator of activity by way of releasing a good deal of repressed affectivity.

In neither case is the use of high dosages of drugs in order to achieve effect warranted. Those patients who responded did so in reaction to the average dose.

Since a condition may be better judged at its height of expression it occurred to us to compare the situation with the one arising from the use of Mescal. As it is well established in the latter case there is a promotion of release of brilliant colors of unparalleled beauty, etc. To quote Huxley[12], Mescal "gives infinite values to naked existence . . . relieved of the world pretensions . . . it gives access to contemplation but to a contemplation that is incompatible with action, the very thought of action." Considering the foregoing observation one may paraphrase the "poetic wisdom" of William Blake and say that Mescal does more than cleanse the doors of perception, it keeps them ajar. It releases so much of repressed affectivity that the latter is hypnotizing in effect. Dartal apparently cleansed the doors of perception to a point of potentiating activity by way of release of some of repressed affectivity. Whereas Thorazine seemed only to dust off the doors of perception.

The ability of the patient to produce visual conceptual forms while showing impairment of conceptual thinking is explained as a psychobiological manifestation akin to *homeostasis.*

Manhattan State Hospital, Wards Island, N. Y.

BIBLIOGRAPHY

1. Beach, F. A.: Body Chemistry and Perception. In: "Perception, an Approach to Personality." Blake and Ramsey, Eds. N. Y. *Ronald Press,* 1951.
2. Bergson, H.: "Matter and Memory." N. Y. *Macmillan Co.,* 1929.
3. Brain, W. R.: *J. Ment. Sc.,* 102:221, 1956.
4. Campbell, J.: "The Hero of a Thousand Faces." N. Y. *Pantheon Books,* 1949.

5. Davidson, G. M.: *Psychiat. Quart.*, 18:459, 1945.
6. Davidson, G. M.: *J. of Nerv. and Ment. Dis.*, 123:149, 1956.
7. Davidson, G. M., and Wise, B. V.: *Psychiat. Quart. Supp.*, 31:222, 1957.
8. Davidson, G. M., and Wise, B. V.: *J. Nerv. & Ment. Dis.*, Oct. 1955.
9. Doust, W. L.: *Confinia Neurol.*, 15:298, 1955.
10. Gastaut, H., Feuer, S., and Castella, C.: *Confinia Neurol.*, 13:103, 1953.
11. Hadamard, J.: "Psychology of Inventions in the Mathematical Field." *Princeton Univ. Press*, 1947.
12. Huxley, A.: "Doors of Perception." N. Y. *Harper & Bros.*, 1954.
13. Jackson, J. H.: Selected Writings. London, *Hodder & Stoughton*, 1932.
14. Linton, R.: "Cultural Background of the Personality." N. Y. *Appleton-Century*, 1945.
15. Malinowski, B.: *Psyche*, 4:98, 1926.
16. Miller, J. G.: Unconscious Processes and Perception. "Perception, an Approach to Personality." Blake and Ramsay, Eds. N. Y. *The Ronald Press*, 1951.
17. Read, H.: "The Icon and the Idea." *Harvard Univ. Press*, 1955.
18. Whorf, B. L.: "Language, Thought and Reality." N. Y. *John Wiley & Sons*, 1959.
19. Woodworth, R. S.: *Am. J. Psychol.*, 60:119, 1947.

The Significance of Color in Dreams

NATHAN ROTH, M.D.

The topic of the appearance of color in dreams has received only a modicum of attention in psychoanalytic literature. According to Linn,[1] ". . . color in dreams provides ready evidence of superego function in the nonauditory sphere," but, he adds, "Whereas color in dreams is often associated with superego functions, this is by no means invariably so. A variety of id strivings can find expression in the dream via color." Similarly Calef[2] relates the matter of color in dreams to the superego by ascribing its absence to the effects of resistance and repression; "Color, the differentiating medium of vision, is removed in the service of repression. On the threat of the return of the repressed, color in dreams may reappear (especially if the repressed is linked with the scoptophilic-exhibitionistic impulses) and represents a further regression . . ." A related point of view, although not specifically stated with regard to color, is expressed by Greenacre:[3] ". . . strong visual stimulation adds very much to the stress of the superego formation at whatever time it occurs." According to this formulation, if color constitutes "strong visual stimulation," it would be most likely to appear in the dreams of patients during the analysis of superego defects.

There is another approach to the problem of the meaning of color in dreams which has merit, namely, that it is related to the function of color perception in general, and that its appearance in dreams usually refers to a neurotic disturbance of color perception. Closer observation then indicates that impaired color perception is part of a larger visual dysfunction. It is to J.-M. Charcot[4-7] that we owe the first comprehensive account of the psychogenic visual disturbances in hysteria; he described the concentric narrowing of the visual fields, and the changes of color perception, dyschromatopsia, which occur in this disease. In the experience of this writer, psychoanalytic observation indicates that various psychogenic visual disorders are probably uniquitous in the neuroses. If attention is given to this matter in the dreams and free associations of analytic patients, it appears that all neuroses give rise under specific circumstances to various forms of visual field defect, alterations of visual acuity, spastic and paretic phenomena in the ocular motor apparatus, and defects in color perception. Strikingly enough, these psychogenic dysfunctions, more often than not, exist outside the field of the patient's conscious awareness.

The following lengthy dream, written out by the patient himself after first reporting it verbally to the analyst, will illustrate the

appearance of color in a dream, along with references to several other types of visual disorder simultaneously present:

I was at what was apparently a national park out west, with my father. We walked down six or seven stone slab steps to the edge of a lake. We came there to find something but there was no sign as to what it was. We turned to leave, and after I had put one foot up on the next step I turned and noticed the scenery. The lake was surrounded by mountainous peaks (about 8 or 10); each peak was separate and connected with the adjacent mountains only along the bases where they rose in common from the ground (which was covered with numerous rocks, pebbles and gravel). I remarked vehemently, "Why would anyone want to live in the city when there is all this beautiful scenery out here." My father seemed to agree silently. At this moment the entire scene assumed color; up until this point everything had been in black and white. The lake was a beautiful blue, the rocks and mountains were greyish, black and brown, and the sky was overcast. I noticed, off to my right, a rock which was imperfectly balanced near the edge of the lake; it had a flat top. Then I noticed that the lake was full of fish, apparently trout, although the colors weren't quite right for any of the trout I'd seen. I put my hand in the water and caught one of them—about 11 inches long. It was mainly brown with dark brown, grey and black speckles; it most resembled in form a brown trout, but the colors still weren't quite right. Along its left side was printed in indelible ink, "Salmon." I thought that this was peculiar since it was a trout. I also felt that it must have been labeled when very young in order to identify it at a later date; however, I still thought this strange as one doesn't label or write on fish. I threw the fish back into the water and then I realized that I should have placed it back more gently, but was relieved when I saw it swim away as soon as it hit the water. I then noticed two girls come on the scene, both about the age of 20. One was dressed in hip boots and had a fly rod, reel and jacket. The other may have had on only slacks, i.e., no boots—I'm not sure, and was helping the one that was actually doing the fishing. The helper was walking along in the water to the left of the other—in deeper water. The girl with the rod kept casting back and forth but never got a bite. I commented to my father that I would have used worms, not dry flies. They were fishing near the flat rock. I then saw that the girl had changed to worms, and had baited her line with about fifteen hooks all covered with large worms. I thought that both the number of hooks and the size of the worms were a mistake. The girls worked their way over to us, and the one fishing changed hooks, put on just one hook with a smaller chunk of worm and cast again. (I forgot to say that when she was using so many hooks, I could see the fish chewing at the worms under the water, and I could also see the hooks, worms and line under the water.) This time she hooked a fish of about three and a half pounds, about 15 inches long. I wanted to help her net it but stopped just short of her, figuring it was not my place to interfere with her sport. However she handed the net to me, and I proceeded to net the fish head first. But she tightened up the line and I ended up netting him tail first—the wrong way. When we got the fish out of the net I noticed that it was just about half the size it had been, and had protuberant eyes and a white body that was covered with a splotchy orange-red design. I thought that it reminded me of a large underdeveloped fish which looked somewhat like a hatchling.

The patient, a young adult male, at the point in his analysis when he had this dream, was becoming aware of his intense oral strivings which he especially endeavored to gratify voyeuristically. His need for the maternal breast had probably received powerful reenforcement from the fact that, in the first months of his life, he had had pylorospasm necessitating medical attention. His avid oral aims provoked stringent guilt feelings and resulted in his inability to get married or even to leave the city in which his parents resided—consequences which are clearly alluded to in the dream. When he was admitting these data to consciousness color reappeared in his dreams for the first time since the earliest dreams reported at the beginning of his analysis months earlier.

The dream shows that, not only does color appear at a specific moment which is determined by particular affective constellations and genetic events, but also that it is accompanied by other visual disturbances. These may be enumerated according to the order of their appearance in the dream, as: fluctuating enlargement and restriction of the visual field; fragmentation of the visual field due to the appearance and disappearance of scotomata; difficulties in optic accommodation and diminution in visual acuity; discoordinated motility in the functioning of the extra-ocular muscles; compulsive fixation of central vision on a limited area of the field; multiplication of the object as optically perceived; metamorphopsias in the visually perceived object, together with macropsia and micropsia. The color phenomena of the dream at first appear to the dreamer, to be beautiful and from

the point of view of the physiology of color perception, quite normal. Shortly, however, they change and appear "not quite right," unpleasant and improperly perceived. It would seem then that the dream is alluding to the developmental disturbance, neurotic in origin, of color perception, giving rise to dyschromatopsia as a conversion symptom. The imperfectly balanced rock in the dream, which clearly has a multiple determination, may be understood in one sense as marking the moment of change from normal color perception to neurotic dyschromatopsia, with its accompanying features for the patient of insecure orientation in the external world, and vestibular phenomena of bodily instability.

Color in dreams may thus be viewed as part of a larger phenomenon, the psychogenic dyschromatopsia of waking life, which, in its turn, is part of a more extensive psychopathologic process, namely, emotionally caused disabilities of visual perception. Such perceptual defects, occurring usually outside the patient's consciousness, undergo marked vicissitudes during the course of psychoanalysis, commonly undergoing exacerbation with the intensification of active resistances, and finding amelioration with the working through of areas of conflict. They regularly make their way into dreams, where they are most easily detected. While Freud[8] was not impressed with the frequency of occurrence in dreams of Silberer's "functional phenomenon," pertaining to the state of the psychic apparatus at the time of the dream, it would appear that there is a functional phenomenon, pertaining to the state of the visual apparatus, which does manifest itself in dreams with a very striking regularity.

The genesis of some visual disorders, such as micropsia, seen both in dreams and waking life, have been related[9,10] to conflictual oral drives. This writer's experience leads to the conclusion that such conflict is responsible for various additional types of functional visual defect, some of which have been referred to in the dream related above. There remains the problem of why it is specifically the visual apparatus which is attacked in this manner, despite the well documented psychoanalytic observations of the close relationship between orality and voyeurism. In this connection Schilder's observations are relevant. He points out[11] that irritation of the vestibular apparatus provokes darkening or concentric narrowing, as well as scintillation, of the visual field, and that these events appear in dreams. He further states[12] that, "Dysfunction of the vestibular apparatus is very often the expression of two conflicting psychic tendencies; dizziness occurs, therefore, in almost every neurosis," and he believes[13] that, "Dizziness is as important from an analytic point of view as anxiety." The analyst has ready opportunity to confirm these observations for himself. The development of anxiety in almost every patient is accompanied by dizziness and other vestibular phenomena, which are quickly followed by visual dysfunction, especially easily detectable in dreams but also readily observed in waking behavior, and giving rise to alterations in the visual fields, to unrealistic distortions of optically perceived objects, etc.

To return to our main theme, the appearance of color in dreams, a new aspect of its significance now becomes visible. The patient suffering from a neurosis which is amenable to the psychoanalytic method of treatment, is very often found to have a disorder of color perception which is unconsciously felt to be very disagreeable, and which results in various handicaps in daily functioning. For example, when under the influence of such a dyschromatopsia, women find it difficult to shop for clothes or to furnish their homes; other patients give up driving cars because they are not sure of the colors of traffic lights. It is inevitable that the human organism will bend its efforts in the unceasing biologic struggle to achieve health and efficient functioning; in this case, it will attempt to regain intact color perception. In an earlier communication[14] this writer has stated, with regard to the function of the dream, that, "It appears that the dream contains another example of a force operating 'beyond the pleasure principle,' for in addition to its wish fulfilling function it serves

the efforts of the psyche in its strivings for fuller living, better adaptation, and greater health." It is in the interests of overcoming the psychogenically induced dyschromatopsia that color first appears in dreams. It is the dreamer's effort to mull over the factors responsible for his disorder of color perception and other visual defects, with the aim of mastering this pathophysiologic process so as to regain complete and stable color perception and optic function in general.

> ". . . I doubt not but either to preserve health or amend the life, dreams may, to a wise observer, be of special benefit."[15]

Summary

The appearance of color in dreams is due to a psychogenic disorder of color perception, or dyschromatopsia, present in waking life and usually not present in the patient's conscious awareness. This is part of a larger visual dysfunction which probably occurs universally in all neuroses, undergoing exacerbation and remission under specific circumstances. The dyschromatopsia makes its way into dreams as a result of the patient's efforts to master this functional defect.

125 E. 72nd St., New York 21, N. Y.

REFERENCES

1. Linn, L.: Color in Dreams. *J. Am. Psychoanal. Assn.*, II, 1954, pp. 462-465.
2. Calef, V.: Color in Dreams. *J. Am. Psychoanal. Assn.*, II, 1954, pp. 453-461.
3. Greenacre, P.: Vision, Headache and the Halo. *Psychoanalytic Quart.*, XVI, 1947, pp. 177-194.
4. Guillain, G.: "J.-M. Charcot, His Life—His Work." Edited and translated by Pearce Bailey. New York: *Paul B. Hoeber, Inc.*, 1959, p. 138.
5. Charcot, J.-M.: "Clinical Lectures on Certain Diseases of the Nervous System." Translated by E. P. Hurd. Detroit: *George S. Davis*, 1888.
6. Charcot, J.-M.: Lectures on the Diseases of the Nervous System. Translated by George Sigerson. Vol. I. London: *The New Sydenham Society*, 1877.
7. Charcot, J.-M.: "Clinical Lectures on Diseases of the Nervous System." Vol. III. Translated by Thomas Savill. London: *The New Sydenham Society*, 1889.
8. Freud, S.: "The Interpretation of Dreams." (1900.) *Sandard Edition*, Vol. V, p. 505.
9. Fenichel, O.: "The Psychoanalytic Theory of Neurosis." New York: *W. W. Norton & Co., Inc.*, 1945, p. 227.
10. Bartemeier, L. H.: Michopsia. *Psa. Quart.*, 1941, pp. 573-582.
11. Schilder, P.: "Mind: Perception and Thought in Their Constructive Aspects." New York: *Columbia University Press*, 1942, p. 89.
12. *Op. cit.* (11), p. 134.
13. *Op. cit.* (11), p. 130.
14. Roth, N.: Manifest Dream Content and Acting Out. *Psa. Quart.*, XXVII, 1958, pp. 547-554.
15. Feltham, O. (1602(?)-1668): "Of Dreams." In A Book of English Essays, Selected by S. V. Makower and B. H. Blackwell. London: *Oxford University Press*, 1952, p. 15.

CORRECTION

In the article "A Survey of Side Effects and/or Toxicity of Newer Psychopharmacologic Agents" by Cares and Buckman published in the April 1961 issue, Vol. 22, No. 4, Sec. 2, Monograph Supplement, page 97, the references on hydroxyzine (Atarax or Vistaril) do not apply. No serious side-effects or toxicity in the use of hydroxyzine have been described in six articles that were reviewed in the literature from 1958 to 1960.

Use of Chlorpromazine with the Difficult Pediatric Dental Patient

SAUL I. HARRISON, M.D., and RAYMOND H. SAWUSCH, D.D.S.

Introduction

Children are "motor-minded." In consequence anxiety and fear in youngsters generally cause behavioral symptoms varying from restless fidgitiness to gross hyperactivity. Dentists who work with children have been acutely aware of this fact and have used a variety of techniques to minimize the undesirable motor activity of their apprehensive young patients. These techniques have varied from attempts to establish rapport to general anesthesia.

Chlorpromazine has been reported to be a worthwhile addition to the medications used preoperatively for children and adults.[1,3,4] We attempted to study its effectiveness in reducing the apprehension that results in undesirable behavior in the pediatric dental patient.

Method

Children from three local sources were screened carefully: 1) From the Children's Psychiatric Hospital of the University of Michigan Medical Center, a 75 bed residential treatment unit, 2) The Children's Clinic, University of Michigan School of Dentistry, an out-patient facility similar to others affiliated with schools of dentistry, and 3) A private pedodontic practice in Ann Arbor, Michigan. In total these provided a population source in excess of 300 dental patients.

Only those children who had previously exhibited no improvement in rapport and behavior in consecutive dental appointments were used as subjects in this investigation. Of the nineteen youngsters so selected, 15 were from the Children's Psychiatric Hospital, three were from the Dental Clinic, and one from private practice.

At the Children's Psychiatric Hospital and in private practice all the dental work was performed on the selected children by one of us (R.H.S.) both before and after selection for the study. At the Children's Dental Clinic, senior students in the School of Dentistry performed the procedures until it was determined that the youngster was a suitable candidate for the investigation whereupon we worked with the child.

All observations were made during the dental appointment and recorded as soon as the investigator had completed his dental work. When senior students were performing the procedures, observations were recorded during the appointment. The observations were recorded as a running commentary supplemented by questions of the conversation between dentist and patient.[2] A fixed routine of dental procedure was followed in treating all the patients before and after pre-medication.

Envelopes of chlorpromazine hydrochloride 25 mg. and lactose were numbered in a 100 series after random selection by a consultant. Punctured capsules were administered in numerical order by ward nurses or parents to the selected youngsters who weighed less than 75 pounds one to two hours before the experimental dental appointments. A 200 series containing twice the dosage were used for youngsters over 75 pounds.

Developing a standard for appraising the behavior of the children was a difficult task. During each session particular attention was focused on what the investigating dentist subjectively considered to be cooperative or uncooperative responses of the child. These were recorded as described above. A comparison of rapport in each appointment was made. Designation as improved was based primarily on a decrease in severity, intensity and frequency of non-cooperative responses. The intervals between sessions ranged from seven days to eight months.

From Department of Psychiatry, University Medical Center, and School of Dentistry, University of Michigan, Ann Arbor, Michigan.

Results

When the experimental appointments had been completed and the recordings had been tabulated as *improved, improvement questionable,* or *no improvement,* it was disclosed that 11 children had received chlorpromazine and eight children received sugar. The one patient treated at the investigator's office received chlorpromazine. One of the three children treated at the Dental Clinic and nine of the 15 children treated at Children's Psychiatric Hospital received chlorpromazine. Of the 11 patients who received the drug, seven showed no improvement, one of the children improved, and in three others the improvement was questionable. Of the children who received sugar, five showed no improvement, one improved, and in two the improvement was questionable.

In an effort to simplify statistical comparison of the drug-group with the placebo-group, the questionably improved cases were tabulated as improved. On a four-fold table this yields a $X^2 = .48$ and $p = .50$. This would suggest that one time out of every two the results were due to chance and that the differences in response to chlorpromazine and sugar are not significant.

The complete record of the nineteen subjects and samples of some of those who were screened out as unsuitable for this study are available in the original report.[2]

It should be noted that the questionably improved cases were youngsters who manifested increasing rapport in dental appointments subsequent to the experimental one.

Discussion

Since the study was confined to 19 patients, it has limited value. Further investigation will be necessary to determine if the results with such a small sample are conclusive. Perhaps a modification in dosage and a longer period of premedication might prove chlorpromazine effective in well-chosen patients.

In addition the investigation encompassed a number of variables so that the results scarcely can be designated as conclusive. However, these variables, particularly those dealing with the recording of behavior, are continually subject to interpretation and as long as consistency is maintained while interpreting the results both with chlorpromazine and placebo, some scientific conclusions can be reached.

Summary

(1) This report presents the method and results of a limited double-blind study of the value of chlorpromazine as a premedication for children who became emotionally upset during a dental appointment.

(2) The differences in reactions to placebo and chlorpromazine were statistically insignificant.

(3) We have no amendment to offer to the fundamental tenet that dealing with children successfully during a dental appointment is dependent on the ability of the dentist to establish an understanding interpersonal relationship between himself and the child. Multiple factors beyond the scope of this study contribute to this. In this study chlorpromazine 25-50 mg. one to two hours before a dental appointment did not decrease the restlessness of the apprehensive pedodontic patient.

REFERENCES

1. Baldridge, O. L.: *J. Oral Surg.,* 15:199-206, July 1957.
2. Sawusch, R. H.: Ann Arbor, University of Michigan, 1958. 87 p. *Typed Thesis.*
3. Tevetoglu, Fetki, and Abbey, J. A.: *J. Pediat.,* 51:181-185, Aug. 1957.
4. Weiss, W. A., et al.: *Amer. Med. A. J.,* 161:812-815, June 30, 1956.

Evaluation of Electroencephalographic Changes Associated with Chronic Alcoholism

MARK DYKEN, M.D., PHYLLIS GRANT, M.D.,
and PHILIP WHITE, M.D.

Introduction

The present study was undertaken to determine if a relationship could be established between possible cerebral changes associated with chronic alcoholism and electroencephalographic findings. Because of the high incidence of alcoholism, a number of studies[1-6] reporting electroencephalographic changes associated with chronic alcoholism have appeared in the literature. Many of these studies have tended to indicate a high percentage of abnormalities in the electroencephalograms of chronic alcoholics. The abnormalities discussed were not clearly defined in many instances. Some of the changes defined as abnormal seemed not significantly different from those which have been seen in control studies.[7,8] Thus, although the subject has been discussed previously, we felt that an additional review of a large series would be valuable.

Material

In a five-year period there were 601 admissions to a special alcoholic care unit. A total of 645 electroencephalograms were done on 553 patients, some of whom had been admitted more than once. Until the fall of 1958 this unit was operated primarily as a residential unit and was devoted to a sociological milieu type therapy. No precise neurologic studies were undertaken and the medical care available was aimed at ruling out or attending to any serious medical disease. Medical and alcoholic historical data were sparse and possibly not entirely accurate. Since 1958 more complete and accurate examinations and information have been recorded, including neurological and psychological examinations.

From the Research Unit, New Castle State Hospital, New Castle, Indiana, and the Department of Neurology, Indiana University School of Medicine, Indianapolis, Indiana.

Method

All historical and physical data were reviewed. In most instances it was possible to categorize the patients according to age, race, amount and type of alcoholic intake, length of time of alcoholism, the time of termination of last drinking episode and evidence of severe neurologic or systemic disease, as well as the temporal relationship of the electroencephalogram, admission date, and date of last debauch. The status on admission was not always clear, but when defined, the patient was categorized as being mentally clear, inebriated, having delirium tremens, or showing signs of chronic organic changes. An attempt was made to separate the known epileptic from the patient subject to so-called "whiskey fits."

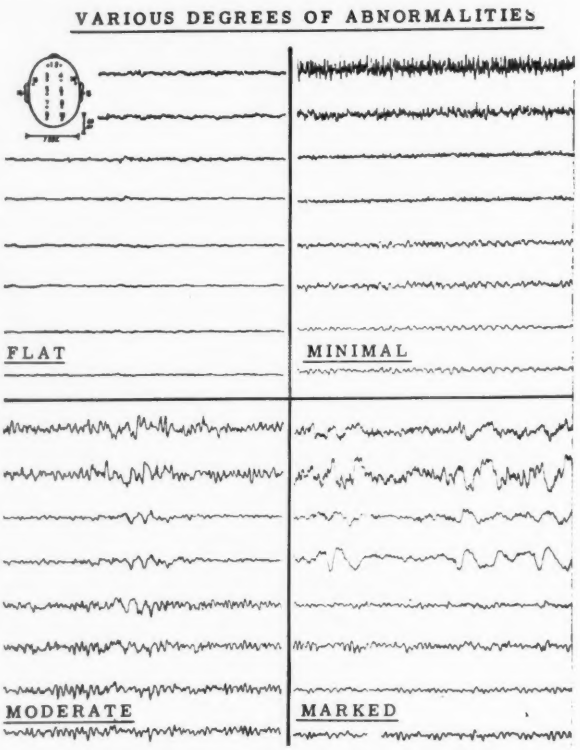


Fig. 1. Examples of records classified according to criteria outlined in Table I.

Medication which might alter the electroencephalogram was noted. All available additional information was charted and indexed.

Electroencephalograms were done on an eight channel electroencephalograph with electrodes positioned as indicated in Fig. 1. All recordings were of the bipolar type including a three-minute period of hyperventilation and a subsequent period of photic stimulation.

Each record was reviewed by one of the authors. If upon review a record previously classified as normal was thought to be abnormal, all authors reviewed the record independently. All records previously categorized as abnormal were also reviewed by all authors independently. The records were categorized according to the majority opinion in the rare case where disagreement occurred. Recognizing that a variety of classifications are used in interpreting electroencephalograms, for this review we have developed a classification using the definite criteria outlined in Table I. Examples of the types of records are illustrated in Figure 1.

Results

The statistics were calculated on the basis of 601 admissions since any one patient could represent different problems on separate admissions. Multiple electroencephalograms were often taken when abnormalities occurred. Thus statistics based on the total number of recordings would be misleading Over 90% of the patients were white. The ages ranged from 20 years to 68 years and approximately 90% were between the ages 31 to 60. Approximately 40% of the patients had some grade school education, almost 50% had reached high school or graduated, and 11% had some college education. Almost all of the patients admitted drinking for more than five years, and 68% admitted that alcoholism had been a serious problem for over five years. The severity of the alcoholic problem of our group is confirmed by the historical evidence that 43% of the patients had had delirium tremens on one or more occasions. In all probability this is a conservative figure, since some of the patients originally denied such serious complications but later acknowledged them. Some patients previously admitted in delirium tremens denied their occurrence on later admissions.

Thirteen per cent of the patients had positive neurological signs, and 26% had evidence of other severe systemic illness. Of those patients who reported the type of alcoholic intake, 71% resorted to wine. This was considered to be a sign of the increasing severity of the problem.

Six patients had epilepsy of a type not related to their alcoholism, and at least 35 had a history of convulsions associated with alcoholic withdrawal. The early methods of record keeping were not adequate and it is probable that more patients had such a history.

On admission about 20% of the patients had clinical evidence of some type of alcoholic involvement ranging from frank delirium tremens to acute inebriation and obvious organic mental changes. These organic changes included disturbance of memory, orientation, judgment, and inability to perform simple mathematics, and a lack of awareness of current events. At the time of the electroencephalogram approximately 60% of the patients were known to be on

TABLE I

Classification Criteria

NORMAL—Alpha and beta activity of the usual distribution and symmetry.

FLAT—Alpha present less than 10% of the time. Other normal frequencies not exceeding 10 mcv amplitude.

MINIMAL—Non-specific, non-focal, non-persistent spontaneously appearing dystrhythmias of less than 30 mcv amplitude. If evoked by hyperventilation, such dystrhythmias must persist for at least 60, but no more than 90 seconds following cessation of overbreathing.

MODERATE—Persistent arrhythmias and dysrhythmias of low voltage (less than 30 mcv), or if non-persistent, with voltages over 30 mcv. Any abnormality evoked by hyperventilation lasting more than 90 seconds is also included.

MARKED—Specific wave forms such as spikes, sharp waves, or a combination of spike-slow wave activity, plus all dysrhythmias and arrhythmias not included in the minimal and moderate groups. Specific abnormalities evoked by photic stimulation or metrazol.

some type of medication, such as the phenothiazine derivatives or barbiturates. Almost 90% of patients had electroencephalograms within two weeks after admission.

A review of the electroencephalograms compared to admissions revealed 63 abnormal and 537 normal including 50 flat records. No causal relationship between the flat records and other known variables could be established. If more than one electroencephalogram was done during an admission, the most abnormal one determined the category. The 10.5% incidence of abnormality is comparable to that usually found in a normal control population. Twenty or 3.3% were minimally abnormal; 28 or 4.7%, moderately abnormal; 15 or 2.5%, markedly abnormal.

Of the 43 moderately or markedly abnormal records, 29 were adequately documented revealing causes other than alcoholism in 65% of those with moderately abnormal records and 75% of those with markedly abnormal records. These causes included central nervous system syphilis, severe head trauma, brain abscesses with resultant surgery, subdural hematomas, congenital neurologic disease, and epilepsy preceding alcoholism.

Discussion

Since 89.5% of our admissions had entirely normal electroencephalograms, and an additional 3.3% had non-specifically abnormal records such as are seen in normal control series, we feel that the electroencephalogram is not a valid indication of the possbile cerebral organic changes associated with chronic alcoholism. This conclusion is further validated by an analysis of those cases in whom moderately or markedly abnormal records occurred. Some of these neurologic entities could be the result of alcoholism in that the patient exhibited improper judgment or neglect, with resultant trauma, infections, etc. We do not mean to imply that chronic alcoholism does not impair cerebral function. We suggest only that this impairment need not be reflected in the electroencephalogram. A psychological evaluation with techniques designed to measure adaptive abilities and organic changes has also been carried out on some of these same patients. This study demonstrated impaired adaptive abilities without evidence of specific organic damage.[9]

Summary

The clinical and electroencephalographic data available on 601 admissions to a unit for chronic alcoholics were correlated. A total of 645 electroencephalograms were reevaluated by the authors and separated into groups for which specific criteria were established. Of the total admissions abnormal electroencephalograms occurred in 10.5% including the 7.5% in the moderately or markedly abnormal group. These grosser abnormalities were related to factors other than alcoholism *per se* in most instances. In this series uncomplicated chronic alcoholism did not produce significant electroencephalographic changes useful as unequivocal evidence or organic brain damage.

Mark Dyken, M.D., New Castle, Ind.
Phyllis Grant, M.D., New Castle, Ind.
Philip White, M.D., Indianapolis, Ind.

REFERENCES

1. Greenblatt, M., Leviro, S., and Cori, F.: The EEG Association with Chronic Alcoholism, Alcoholic Psychosis and Alcoholic Convulsions. *Arch. Neurol. Psychiat.*, 52:290-295, 1944.
2. Funderburk, W. H.: Electroencephalographic Studies in Chronic Alcoholism. *Electroencephalog. & Clin. Neurophysiol.*, 1:369, 1949.
3. Funkhouser, J. B.: Electroencephalographic Studies in Alcoholism. *Electroencephalog. & Clin. Neurophysiol.*, 5:130, 1953.
4. Little, S. C., and Mercer, N.: Electroencephalographic Findings in Chronic Alcoholism. *Electroencephalog. & Clin. Neurophysiol.*, 4:245, 1952.
5. Bennett, T. E., Dai, L. T., and Mowery, G. L.: The Value of Electroencephalography in Alcoholism. *J. Nerv. & Ment. Dis.*, 124 (1), 27-32, 1956.
6. Bennett, A. E.: Diagnosis of Intermediate Stage of Alcoholic Brain Disease. *J.A.M.A.*, 172:1143-1146, March 1960.
7. Gibbs, F. A., and Gibbs, E. L.: "Atlas of Electroencephalography." Cambridge, *Addison-Wesley Press, Inc.*, 1950.
8. Hill, D., and Parr, G.: "Electroencephalography." New York, *MacMillan Company*, 1948.
9. Fitzhugh, L. C., Fitzhugh, K. B., and Reitan, R. M.: Performance of Alcoholic Subjects on Measures of Adaptive Abilities and Intellectual Functions. *Q: J. Alcohol.* (In Press.)

Book Reviews

CENTRAL NERVOUS SYSTEM CONTROL OF CIRCULATION. Proceedings of a symposium. L. W. Eichna and D. G. McQuarrie, Eds., Physiological Reviews, 1960. (The American Physiol. Society), Supplement No. 4, 311 pp.

This book is the record of a two day conference of experts from the neurological and the cardiovascular disciplines who presented 20 formal papers and participated in 10 discussion periods which were transcribed verbatim.

The organization of the symposium follows approximately the ascending levels of the nervous system, starting with peripheral regulations, continuing through the sympathetic, limbic, hypothalamic, and midbrain systems, and dealing in the final chapters with cortical influences on circulatory control. The papers differ greatly in length and in breadth of coverage. Approximately one fourth of the book contains systematic and thorough coverage of relatively broad topics, whereas other papers are primarily reports of specific current research studies. The material is by necessity highly technical; cardiovascular physiologists may sometimes find it difficult to follow the technical details of neurophysiological experimentation, while neurophysiologists may not always be aware of the complexities of cardiovascular research. One of the aims of the symposium; namely, that of providing increased communication between experts from the two disciplines, was accomplished with considerable success.

The most impressive papers were those dealing with some of the broader topics, such as Bard's review of the anatomical organization of the central nervous system, Nauta's brief summary of anatomical aspects of the limbic system and hypothalamus, and Oberholzer's presentation of circulatory centers in medulla and midbrain. The latter author included interesting historical background material which was greatly enjoyed by the present reviewer who, like many of his colleagues, finds little time for reading in the history of medicine. Readers who are interested in current research will find in the papers up-to-date information on topics such as control of renal circulation, effects of limbic stimulation on the male genital organ, circulatory effects of cortical stimulation, and conditioned cardiovascular reflexes.

In reading a comprehensive symposium such as the present one it is recommended that the reader first browse through the book, starting with some of the review chapters, then sampling research reports according to his interest, and finally following with some of the stimulating discussion sections. The present volume will certainly be of value to anyone who is interested in neurophysiology or in cardiovascular physiology, whether he be expert or layman.

John S. Stamm.

SURGERY IN WORLD WAR TWO. Neurosurgery, Volume One. R. Glen Spurling, M.D., and Barnes Woodhall, M.D., Editors for Neurosurgery. Office of the Surgeon General, Washington, D.C., 1958.

This volume is one of two dealing with neurosurgery in World War II. The one reviewed here concerns itself with the administrative considerations of military neurosurgery and with head injuries. The second is to cover trauma of the spinal cord and peripheral nerves.

In the first three chapters the administrative considerations of setting up neurosurgical centers in the Zone of Interior, the Mediterranean and the European Theaters are discussed. That this was a formidable task can be understood from the fact that prior to the first neurosurgical service being set up in May of 1942, there was not a single full-time neurosurgeon in the army. These chapters tell the planning of neurosurgical centers, the training programs for neurosurgeons, methods of evacuation and varied other administrative details. This information could serve to prevent future difficulties of this nature should such a rapid mobilization ever again become necessary. It might be mentioned that the deficiencies are freely discussed by the former medical officers who are now prominent in the civilian practice of neurosurgery.

The remainder of the book is about the management of head wounds. This is approached through a discussion of the experiences in each of the theaters of operation. Not only is this an historical survey of the subject but also it becomes an excellent manual for the treatment of acute head trauma. In addition to information on the management of the acute situation, later treatment is also discussed. For example, there are excellent chapters on cranioplasty, posttraumatic epilepsy and even a discussion of speech therapy. The chapter on blast concussion is very well done. It includes a discussion of psychiatric and neurological considerations as well as the neurosurgical ones.

The final chapter is a clinicopathologic study of twenty-four fatal cases. There are some fairly good reproductions of gross and microscopic material as well as an attempt at some clinical-pathological correlation.

This then is excellent reading for the military surgeon, the civilian neuro-surgeon, neurologist, or psychiatrist, or any physician who deals with head injuries or their consequences.

Alan M. Elkins, M.D.

MULTIPLE SCLEROSIS PROGNOSIS AND TREATMENT. By Leo Alexander, M.D., Austin W. Berkeley, Ph.D., Alene M. Alexander. 118 p. $7.50.

Alexander and his colleagues, mindful of Harvey Cushing's admonition that continuous minute detailed observation of the evolution of disease is the basic ingredient of medical knowledge and a guide to therapeutic action, undertook a quantitative study of Multiple Sclerosis in all of its varied aspects.

In their Multiple Sclerosis Research Clinic Headquarters in the Boston State Hospital, these investigators accumulated data over a period of eight years. They have refined this material and they report in this volume. The work is well documented and well controlled and sufficient information is gathered and presented to make some prognostication from the early manifestations of the disease. In like manner, treatment methods were evaluated by individually mentioned control cases and the handling of patients who are in remission is evaluated and commented upon. Supportive and protective therapeutic measures are outlined as are various forms of symptomatic treatment.

The authors advise blood transfusion therapy in those patients who have suffered a recent attack which is not followed by complete recovery. Should this fail they strongly suggest an intensive treatment program utilizing ACTH therapy and later carrying on a sustained or maintenance regime. The latter therapy, according to this group, is the only method of making inroads on the illness in patients who have chronic progressive or severe stationary disabilities. The book is recommended for not only will it bring one up to date but it gives an excellent resume and an overall picture of this distressing illness.

Francis J. Braceland, M.D.

GROUP PROCESSES. Transactions of the Fifth Conference. Josiah Macy Foundation, 1960.

This volume covers the fifth of a series of conferences on group processes. These conferences are organized informally, usually focused somewhat by a presentation of research or other interests by one of the participants.

The first presentation by Dr. Julius B. Richmond, "Experimental Aspects of Pediatrics," was an endeavor to delienate problems for investigation by pediatricians in clinical practice. Much of the discussion was devoted to evaluation and consideration of ongoing research on autonomic function in the newborn and the delineation of predispositions to psychosomatic disorders. Also discussed were the attitudes and feelings of the parents which are reflected in their care of the child and recorded physiologically by the child; the various factors influencing a mother's reaction to the child; the impact of such things as cultural factors, color of the child, etc.; and the attitude which mothers feel is expected of them. All in all, a stimulating discussion which raised more questions than it answered.

Margaret Mead and Theodore Schwartz led the third discussion, "The Cult as a Condensed Social Process," which was based on extensive field-work and centered around the meaning of a cult in the social life of the Manus people of the Admiralty Islands. The discussion covered what a cult was, how it took place, and under what special conditions it was most likely to occur. A comparison between cults in different societies was presented, as well as a discussion of the functions of cults within social groups. Also included were descriptions of the various abnormal mental phenomena which accompany cults such as convulsions and hysterical symptoms, and comparison of these with other abnormal mental phenomena in somewhat dissimilar societies.

A book of this kind will be unsettling for those who like to follow comfortable channels, because there is so much discussion, questioning and elaboration, but it was a most stimulating intellectual experience and recommended as such. Those interested in research in these areas will find much that is thought provoking.

Francis J. Kane, M.D.

KERNICTERUS AND ITS IMPORTANCE IN CEREBRAL PALSY. A conference presented by the American Academy for Cerebral Palsy, 306 pages, price $8.75, published by Charles C. Thomas of Springfield, Illinois.

The above mentioned book is a collection of papers and discussions (unfortunately very short), presented at the 11th annual meeting of the Academy by noted men in the fields of neuropathology, pediatrics, ophthalmology, otolaryngology, and electroencephalography. It presents, therefore, a multidisciplinary approach, which is essential in view of the complexity of questions involved in this extremely interesting problem. Pathology and pathogenesis, correlations of this with clinical manifestations, the role of the liver in the development of kernicterus are discussed, and offer highly interesting often controversial reading for anyone working or interested in the fields mentioned. The book is well illustrated and contains a valuable, extensive list of references.

Cornelius Boelhouwer, M.D.

MEETING NOTES

AMERICAN ELECTROENCEPHALOGRAPHIC SOCIETY

The 15th Annual Meeting of the American Electroencephalographic Society will be held at the Hotel Claridge, Atlantic City, New Jersey, June 9th-11th. The scientific program will include two symposia—the first, "The Medicolegal Electroencephalogram," Dr. Isadore S. Zfass, Chairman, will be held on Saturday, June 10th at 2:00 p.m. The second symposium—"The Physiological Basis of Memory," Dr. Frank Morrell, Chairman, will be held on Sunday, June 11th at 9:00 a.m.

ACADEMY OF PSYCHOSOMATIC MEDICINE

A one-day meeting entitled "Symposium on Anxiety and Depression" will be held by the Academy of Psychosomatic Medicine at the Hotel Barbizon Plaza, New York City, on Sunday, June 25, 1961. Papers will consider neurophysiological, biochemical, psychodynamic and clinical correlations; there will also be papers on current research in drugs.

TWO WORKSHOP SEMINARS IN THE RORSCHACH TEST, UNIVERSITY OF CHICAGO

I. *The Foundations.* Basic problems. Administration. Processing the associations. Psychologic significance of the test variables. The whole personality in the Rorschach test. Introduction to interpretation. June 19-23, 1961.

II. *Advanced Clinical Interpretation.* Treatment and the test: in neurotic disorders in adolescents and adults. The schizophrenic child. Differentiating the organic. The ego's defenses; patient's assets; the treatment goals. June 26-30.

Doctor S. J. Beck will conduct both seminars. For information write to: Rorschach Workshops, Department of Psychology, University of Chicago, Chicago 37, Illinois.

EASTERN PSYCHIATRIC RESEARCH ASSOCIATION

The Eastern Psychiatric Research Association will hold a quarterly meeting on June 22, 1961 at 8:00 P.M. at the New York University Medical School, Alumni Hall B., New York City. Papers to be presented include "Ex-patients of a Psychiatric Hospital—Twenty-five Years Later" by Jacob Friedman, M.D.; "Electric Coma Therapy in Chronic Mental Illness—A Ten Year Review of Fifty Patients" by Emerick Friedman, M.D.; "Views and Practices in Psychopharmacology" by Brian Campden-Main, M.D., and "Preliminary Report on Parenteral Niamid in Depression" by H. Beckett Lang, M. D. Contact David J. Impastato, M. D., 40 Fifth Ave. New York, N. Y.

Saint Joseph Sanitarium

(Supervision of Sisters of Mercy)

P. O. BOX 236 — DUBUQUE, IOWA

or phone 3-8291 for information

Mild Mental and Nervous Cases

also

Convalescent and Rest Patients

Shock Therapy, Hydrotherapy, Physiotherapy, Occupational Therapy. Competent Staff.

NOW AVAILABLE

LIBRARY VOLUME FILES FOR

Diseases of the Nervous System

In response to frequent requests, we are making available to subscribers a library volume file in which copies of *Diseases of the Nervous System* may be filed and stored. These files may be purchased, embossed with the volume number and year, for $2.00 each, plus 25 cents mailing fee.

PHYSICIANS POSTGRADUATE PRESS

277 BROADWAY - NEW YORK 7, N. Y.

BALDPATE, Inc.

Geo. Fleetwood 2-2131 **Georgetown, Mass.**

Located in the hills of Essex County, 30 miles north of Boston

For the treatment of

psychoneuroses, personality disorders, psychoses, alcoholism and drug addiction. Definitive psychotherapy, somatic therapies, pharmacotherapy. Milieu-therapy under direction of trained occupational and recreational therapists.

Accredited by Joint Commission on Accreditation of Hospitals

HARRY C. SOLOMON, M.D.
Consulting Psychiatrist

PATRICK J. QUIRKE, M.D.
Medical Superintendent

FAIRVIEW Sanitarium

2828 S. PRAIRIE AVE.
CHICAGO
Phone VIctory 2-1650
J. DENNIS FREUND, M.D.
Medical Director

DEVOTED TO THE ACTIVE TREATMENT OF

MENTAL and NERVOUS DISORDERS

Specializing in Psycho-Therapy, and Physiological therapies including:

- Insulin Shock
- Electro-Narcosis
- Electro-Shock
- Out Patient Shock Therapy Available

ALCOHOLISM Treated by Comprehensive Medical-Psychiatric Methods.

BEVERLY HILLS CLINIC and SANITARIUM

210 N. Westmoreland Avenue **WHitehall 3-4651**

Dallas 11, Texas

A private clinic and hospital for nervous and mental diseases both for in-patients and out-patients —stressing a homelike environment with separate building units and special cottages—air-conditioned.

A complete neuropsychiatric diagnostic and treatment center including a department of psychology—encephalography—clinical laboratory and X-ray—psychotherapy—electroshock and insulin coma therapy, as well as psycho-surgery.

ARTHUR J. SCHWENKENBERG, M.D.
JOSEPH L. KNAPP, M.D.
JACKSON H. SPEEGLE, M.D.
Neurology

FRED H. JORDAN, M.D.
HENRY P. HARE, JR., M.D.
LUDLOW M. PENCE, M.D.
Psychiatry

A NEUROPSYCHIATRIC FOUNDATION
THE

ROGERS MEMORIAL HOSPITAL

The Hospital is situated on the Nashotah Lakes, 30 miles west of Milwaukee, providing the ideal, restful country environment and the facilities for the modern methods of therapy of psychoneuroses, psychosomatic disorders, alcoholism, and the other neurologic and psychiatric problems. Occupational therapy and recreational activities directed by trained personnel.

OCONOMOWOC, WISCONSIN
PHONE LOGAN 7-5535

EUGENE FRANK, M.D.
WILLIAM C. JANSSEN
LOREN J. DRISCOLL, M.D.

OWEN OTTO, M.D.
Medical Director

LEROY A. WAUCK, PH.D.
Clinical Psychologist
JOSEF A. KINDWALL, M.D.
Consultant

GLENSIDE HOSPITAL

FOUNDED 1909

Located in an attractive rural setting in the heart of Boston for the care of nervous, mental and geriatric disorders, alcoholism and drug addiction.

The new Ordway Therapy Unit includes the most modern electrotherapy equipment. Anesthesia by the Hand-Auden Associates and trained personnel available to courtesy staff.

RUTH M. CROSSFIELD, M.D., *Medical Director* DORIS M. HORWOOD, *Superintendent*

6 PARLEY VALE, JAMAICE PLAINS, MASS.

JAMAICA 4-0044 RATES MINIMAL

50 BEDS **HILLCREST HOSPITAL** **EST. 1905**

(formerly The Retreat, Inc.)
DES MOINES 12, IOWA

For the diagnosis and treatment of Nervous and Mental Disorders in a homelike environment.

Occupational Therapy, Physiotherapy and Shock Therapy
Open Psychiatric Staff

HERBERT C. MERILLAT, M.D., *Medical Director* HERBERT W. VETTER, *Administrator*

PINEWOOD **Dr. Joseph Epstein, F.A.P.A.**
Dr. Louis Wender, F.A.P.A. **Physicians in Charge**

DR. WALTER A. THOMPSON, F.A.P.A., Clinical Director

Westchester County - Route 100 - Katonah, N. Y. - Tel.: Central 2-3155

A competent sixty bed hospital, psychoanalytically oriented but using multi-disciplinary approach. Patients admitted for "short-term" therapy or more prolonged study. Additional facilities for O.P.D., Day Center Therapy and consultation. Weekly clinical conferences open to the profession. A.P.A. members may receive staff privileges and treat their own patients.

New York City Offices

DR. EPSTEIN—975 Park Ave.—Tues., Thurs., Sat. RH 4-3700

DR. WENDER—59 East 79th St.—Mon., Wed., Fri. BU 8-0580

FAIR OAKS

INCORPORATED

SUMMIT, NEW JERSEY

A fully approved Hospital for intensive treatment and management of problems in Neuropsychiatry

OSCAR ROZETT, M.D.
Medical Director

THOMAS R. PROUT, JR.
Administrator

SANITARIA DIRECTORY

The institutions listed below are among the finest private sanitaria in the United States. They offer private, individual specialized care to the patient.

BALDPATE, INC.
GEORGETOWN, MASSACHUSETTS

BEVERLY HILLS CLINIC AND SANITARIUM
DALLAS 11, TEXAS

ELMLAWN (The Wilgus Sanitarium)
ROCKFORD, ILLINOIS

FAIR OAKS
SUMMIT, NEW JERSEY

FAIRVIEW SANITARIUM
CHICAGO, ILLINOIS

FOREST SANITARIUM
DES PLAINES, ILLINOIS

GLENSIDE
BOSTON 30, MASSACHUSETTS

HALL-BROOKE
GREEN FARMS, CONN.

HILLCREST HOSPITAL
(formerly The Retreat, Inc.)
DES MOINES 12, IOWA

PINEWOOD
KATONAH, NEW YORK

RING SANATORIUM
ARLINGTON, MASSACHUSETTS

ROGERS MEMORIAL HOSPITAL
OCONOMOWOC, WISCONSIN

ST. CLAIR HOSPITAL
DETROIT 14, MICHIGAN

ST. JOSEPH SANITARIUM
DUBUQUE, IOWA

Proven

in over five years of clinical use and
more than 750 published clinical studies

Effective

for relief of anxiety and tension

Outstandingly Safe

- simple dosage schedule produces rapid, reliable tranquilization without unpredictable excitation
- no cumulative effects, thus no need for difficult dosage readjustments
- does not produce ataxia, change in appetite or libido
- does not produce depression, Parkinson-like symptoms, jaundice or agranulocytosis
- does not impair mental efficiency or normal behavior

Miltown®

meprobamate (Wallace)

Usual dosage: One or two 400 mg. tablets t.i.d.
Supplied: 400 mg. scored tablets, 200 mg. sugar-coated tablets; or as MEPROTABS*— 400 mg. *unmarked,* coated tablets.

WALLACE LABORATORIES / *Cranbury, N. J.*

QM-2058

*TRADE-MARK